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ABSTRACT

This practicum study evaluated a non-basal, multidisciplinary, multisensory approach to teaching higher order reading comprehension skills to eight fifth-grade learning-disabled students from low socioeconomic minority group backgrounds. The four comprehension skills were: (1) identifying the main idea; (2) determining cause and effect; (3) making inferences; and (4) distinguishing between fact and opinion. Intervention involved a number of teaching strategies including the Close Reading strategy, Schema theory, the Talents Unlimited model, the Junior Great Books, Thoughtful Reading, and creative writing. Evaluation was based upon pretesting and posttesting of the four skills, use of these skills in creative writing, and changes in attitudes toward the reading program. The program's effectiveness was evidenced by improved test scores, internalization of the creative writing process, and positive attitudes toward reading. Appendices include test scores, parent letters, teacher survey results, tests, non-basal worksheets, checklists for the creative writing process, and a parent-teacher manual explaining creative thinking processes. Includes 22 references. (DB)

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DEVELOPING HIGHER ORDER READING COMPREHENSION SKILLS IN THE LEARNING DISABLED STUDENT: A NON-BASAL APPROACH

by

SHEILA SOLOMON

A Practicum Report

submitted to the Faculty of the Center for the Advancement of Education at Nova University in partial fulfillment of the requirements for the degree of Master of Science.

The abstract of this report may be placed in a National Database System for reference.

July/1990

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ABSTRACT

Developing Higher Order Reading Comprehension Skills In The Learning Disabled Student: A Non-Basal Approach.
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Descriptors: Higher Order Thinking Skills/Creative Writing Process/Critical Thinking Skills/Reading Comprehension/Inferencing/Fact or Opinion/Main Idea/Cause and Effect/Non-Basal Approach/Multi-Cultural/Multi-Disciplinary/Learning Disabilities/Logical Thinking/Critical Reading Creativity/Insightful Reading/Interpretive Questioning/Reflective Thinking

This practicum targeted a population of eight fifth-grade students identified as learning disabled. The students were of low socioeconomic, minority parentage who coped with various cultural/language barriers. Various processing deficits compounded by lack of motivation and strategies for learning, low self-esteem, and the inability to transfer and generalize had resulted in poor reading skills. For these students, reading was basically "word calling," and use of higher-order thinking skills was virtually non-existent. Focusing on four higher-order comprehension skills through a non-basal, multi-disciplinary, multi-sensory approach enabled the students to become more proficient, insightful readers. Evaluation was based upon pretesting and posttesting of the four skills, the ability to use these skills in the creative writing process, and observation of changes in attitudes toward the reading program. It was concluded that the non-basal approach was exciting and rewarding as test scores soared to acceptable levels, the creative writing process became internalized, and the eagerness for participation in reading became apparent as evidenced by the positive learning atmosphere of the classroom. Appendices include SAT scores for Feeder Pattern, parent letters, teacher survey, tests, non-basal worksheets, checklists for the creative writing process, and a parent-teacher manual citing creative thinking processes.

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CHAPTER I

Purpose

Research for this project was conducted at an elementary school in the South Florida area. The school was founded in 1929. The interesting architectural mode is of the art deco era and displays two frescoes painted high atop the arched entrance way. The main structure is a newly painted two-story, simply-designed, open-catwalk-type building. The school is well maintained with wide lawns, many old shade trees, and open spaces where staff and students alike may sit at the tables and benches provided. The feeling is one of serenity. Many times this restful area provides the much needed additional space for mini classrooms. Seven portables, one relocatable, one global containing eight classrooms, and a two-room pod complete the campus which houses 1277 students.

Overcrowded conditions in this school originally intended for 756 students makes it necessary for teachers to share classrooms. The splintering of library facilities to include reading and math Compensatory Education classes exemplifies the overcrowded conditions and shrinking instructional space. Every available space, including the stage in the cafetorium, is a designated classroom. Funding will allow for the hiring of additional classroom teachers, but there is simply no place to house them. As a result, aides are employed to help reduce the teacher-pupil ratio which in the upper grades exceeds 40:1.

The school is situated in a predominantly upper-middle class, White, highly conservative neighborhood. Recent years have seen families of varying races and nationalities, many of whom are non-English speaking, moving into the western fringes of the area. Boundaries include sections of a large Haitian community which likewise has contributed to changes in the school population. Several years ago a majority/minority (M&M) desegregation policy encouraged the enrollment of many minority students from out of area.

In very recent years, the school population has changed from predominantly White to 64 percent Black (40 percent Haitian, 24 percent American Black), 12 percent Hispanic, 1 percent Asian, and 22 percent non-Hispanic White. Sixty-four percent of the students are on free lunch. The school population, therefore, belies the population of the immediate community.

Nonetheless, residents of the community take great pride in their home school. The very active P.T.A. remains predominantly White and energetically sees to the many needs of the school. Many of these parents volunteer their time and effort in the classroom, oftentimes remediating students that are in need of one-to-one tutoring. There is much reminiscing about "how the school used to be," as many of the parents and, indeed, grandparents were once pupils in this very school. Many of the families that still remain in the community are well-known pioneers. The school has been designated as an historical site. The tri-ethnic flavor is evident in celebrations and events that take place throughout the school year. Outwardly, there is evidence of tolerance, understanding, and respect for the various cultures and only occasionally are there undercurrents of unrest or intolerance.

An alternative to corporal discipline is met through a grant-funded "TARGET" Program. This is a behavior modification program overseen by a staff member whose sole responsibility is to insure that the program remains a vital, ongoing, well-run part of the overall discipline facet of the school. Classroom teachers target "at risk" students for inclusion.

Administration includes the principal, two assistant principals, and two full-time counselors. Rounding out the instructional staff are 46 classroom and 26 special area teachers. The writer is currently employed as a Learning Disabilities Special Area Resource teacher and has been a part of the faculty for the past six years: two years as a classroom teacher, one year in Compensatory Education, and two years in a first grade honors classroom.

Special programs include both Spanish and Creole instruction, computers, gifted, academic excellence, learning disabilities, music, art, physical education, Compensatory Education, and English for Speakers of Other Languages. Included are two media specialists and a speech pathologist. It is interesting to note that of the 18 kindergarten and first grade classes, seven are self-contained ESOL.

Still another grant-funded program is the COMET lab. Dropout prevention is the main goal for this self-contained unit of 15 "at-risk" fifth graders. Academics and vocational training are combined to make this unique classroom a "must visit" for outside observers.

In past years, the school has been recognized twice as a meritorious school and was cited as a school of National Excellence. This year, for the first time, the school has been deemed as deficient in the area of reading (Appendix A:53). To this end, many courses of remediation have been undertaken. One such proposal is the writing of grants to institute a reading lab that will include studies in right and left brain learning. The funding source is the Chapter II Program, and a need for $52,000 to provide housing and enhancement of the program has been requested.

Plans are currently "in the fire" that will include additions of permanent structures to the campus and the redesigning of already existing structures to insure more efficient use of space. Additionally, a site has been chosen for the construction of a new school to relieve overcrowding and handle the ever-increasing influx of families, many of whom are new immigrants, to the area.

For the purpose of this project, the writer targeted eight fifth grade students identified as learning disabled. The project facility was a Learning Disability Resource Lab (LD). The lab was a large room divided by bookcase partitions into three sections. Three LD teachers conducted classes simultaneously. Each of the eight students attended the lab on a daily two-hour, part-time basis.

Similarities in background and socioeconomic status were noted as they had direct reflection on attitudes toward academics, discipline, social skills, and health. Six of the eight students were from predominantly "non" or "little" English speaking homes. Creole was the language most often spoken in the home of these students. Five of the students were born in countries other than the United States. However, all of the children spoke and understood English relatively well. Seven of the eight students were from homes where meeting basic needs and survival are difficult.

Letters to parents (Appendix B:55) were met with indifference. Only one parent attended an open house and only two presented themselves to sign the Individualized Education Plan (IEP), although letters were sent and repeated phone calls were made. Three of the children were in the care of older siblings or took care of younger siblings throughout the night as the parents worked into the early morning hours. Some of the students prepared the nightly dinner. School participation or help at home with schoolwork were luxuries for both the parents and the students. Consequently, the group of targeted students were truly "at risk."

This statement was further evidenced by an informal survey distributed by the researcher among present and former teachers of these students (Appendix C:57). Responses indicated a "pessimistic forecast" for the future of all but one of these children. Negative responses as to attitudes and behaviors were glaring. Positive responses were few. Only one child received a favorable review.

Teachers surveyed reported that simple containment of these children because of the many behavioral problems needed to be attended to before any learning could take place. Morale and self-esteem were predictably low. Fighting and acting out were not uncommon occurrences that needed to be dealt with periodically.

The writer fully reviewed the evaluations of each student's intellectual, psychological, and academic achievement and social profiles, as presented in the Multi-Disciplinary Team Report. Testing by the school psychologist revealed that all of the students in the targeted group had one or more processing deficits which resulted in reading problems and below-grade reading scores.

I.Q. scores, based on the Wechsler Intelligence Scale for Children - Revised (WISC-R), revealed the following information:

1. Full range I.Q. scores fell between 70 and 111.
2. All but one student scored considerably higher on the performance scale than on the verbal scale, further indicating learning disabilities. (The discrepancy ranging from between eight and 30 points.)
3. Five of the students (all of foreign, non- or little-English-speaking parentage) scored in the borderline to low intellectual range: 70-87.

Although it was difficult to assess the correlation between low I.Q. scores and language/cultural barriers, the above statistics presented inferred that there may well be a major cause for concern.

Results of the Stanford Achievement Test (SAT) administered in the spring of 1989 pointed out the need for a more aggressive program for these students. In the areas of Word Study and Language Skills, the targeted group of students achieved stanines of twos and threes. One American-born student with the I.Q. score of 111 managed to achieve a stanine of four in Word Study Skills and six in Language Skills. On the Reading portion of the Wide Range Achievement Test - Revised (WRAT-R), administered in the fall of 1989, four of the students were reading on a first grade level and the remaining four were reading at various stages of the second grade level.

A more accurate indication of the need for remediation in the higher order comprehension skills was illustrated on that Student State Assessment Test (SSAT) administered county wide to test basic minimum objectives. The tests were given in October of 1989. Results, received in December of 1989, were discouraging. Of the eight students, none had achieved minimum objectives in the areas of "cause and effect" or had been able to recognize differences between "fact and opinion." Only two of the eight had been able to name the "main idea" or "topic sentence" in a given selection. Further observations and informal testing done by this writer indicated that the students could not make inferences.

Table 1

Pretest Scores for the Four Targeted
Higher Order Thinking Skills
Given in Percentages

Student	Skill 1*	Skill 2*	Skill 3*	Skill 4*
A	50	75	40	62
B	50	25	50	46
C	50	0	50	69
D	50	75	60	77
E	30	38	50	77
F	50	38	40	54
G	60	0	20	46
H	20	38	15	62

*Skill 1 - Main Idea (10 Test Items) (Appendix D:60)
Skill 2 - Cause and Effect (8 Test Items) (Appendix E:65)
Skill 3 - Making Inferences (20 Test Items) (Appendix F:67)
Skill 4 - Fact or Opinion (13 Test Items) (Appendix G:70)

Learner (1989:683) stated:

> A key problem for learning-disabled students with reading comprehension difficulties is that they tend to be passive in their approach to reading and wait for teacher direction. They often read reluctantly, hesitating to ask questions and focusing solely on what they think the teacher wants them to remember. These students characteristically do not monitor their reading comprehension. When they are not sure of the meaning of a passage they are reading, they do not

> take action by going back and trying to understand. Instead they continue to read and lose even more of the meaning.

Informal discussions with the eight students included such topics as:

1. attitudes toward reading
2. involvement in reading activities
3. evidence of home reading
4. hobbies
5. kinds of books the students enjoyed
6. if the students enjoyed being read to
7. if they liked to read orally
8. if they liked their reader
9. how the students spent leisure time.

These discussions ascertained that, simply stated, the students did not like to read, did not seek to read independently for pleasure, and most considered reading a chore. The students were often embarrassed by their reading abilities and were frustrated by having to be in the basal reader for such long periods of time, often calling the books "baby books." All stated that they enjoyed being read to. Not one student named "reading" as a hobby. They did not equate lack of reading ability with failure in other scholastic areas or with repercussions in later life. Thus it was evident that the students' learning disabilities were compounded by lack of motivation and lack of far-reaching goals for success.

Reading, for these students, could be more readily defined as "word calling" when, often as not, the words had little meaning in understanding the framework of the whole selection. The problem existed that learning-disabled children did not use or know how to use higher order or critical thinking skills to aid in the understanding of what they were reading. For purposes of this practicum the writer helped the targeted LD students develop higher order (critical thinking) reading comprehension skills stressing the processes of knowledge, comprehension, application, analysis, synthesis, and evaluation. A non-basal approach was instituted to foster and insure greater interest, confidence, and enjoyment of the program.

In view of the hard evidence presented, including test scores and informal attitudinal surveys of both teachers and students, it was this writer's conclusion that there had to be a complete turnabout of emphasis. Learning disabled students need not be "students at risk." The writer, therefore, insisted upon high expectations. If one method of teaching was unsuccessful, mid-course corrections were made to insure success.

Innovation, therefore, was the key. The student was the focal point of a learning process that was goal changing and, indeed, life changing. Further, the student was included in every aspect of this process from the planning through the evaluative stages. Insight and purpose for achievement was a vital part of success. Thus, the student learned to actively listen, read, think, and create. Passivity was outlawed in a dynamic, ever-changing classroom environment.

Incorporating the above philosophy, the writer met the needs of the students by implementing the following goals:

1. Given several written short paragraphs, the student will select the main idea with 80 percent accuracy within a 2-1/2 week time period.
2. Given several written situations, the student will recognize cause and effect with 80 percent accuracy over a period of 2-1/2 weeks.
3. Given several written situations, the student will make inferences with 80 percent accuracy over a period of 2-1/2 weeks.
4. Given several written statements, the student will recognize the difference between fact and opinion with 80 percent accuracy over a period of 2-1/2 weeks.
5. The student will further demonstrate proficiency by effectively incorporating each of the targeted skills in a creative writing assignment at the end of each 2-1/2 week period, as determined by teacher observation as evidenced by a satisfactory evaluation on a creative writing checklist.

6. The student will demonstrate a more positive attitude toward reading and creative writing as evidenced by an increase of positive responses on an oral student attitudinal opinion survey and teacher observation over a 10-week time period.

CHAPTER II

Research and Solution Strategy

Goba (1990) insisted that a teaching priority is that students read for and with insight. He defined insight as interpreting, analyzing, and getting down to the inner nature of literary work. Further, there should be a transference to the world outside the classroom. He stated that these goals have no terminal points but rather need to be a lifelong pursuit.

The process for teaching these strategies is called Close Reading. Goba defined the literary work as an It and the reader as an I. In Close Reading, the It is incorporated into the I and becomes a life experience for the reader. Thus, said Goba (1990:1):

> A close reader is more than an idle traveler through a text. A close reader is a hunter on the prowl, a detective in search of salient clues, a keen observer and interpreter of life expressed in words.

In Close Reading, students must first take apart (or analyze) the components (main ideas, images, inferences, ironies). The second step is to rebuild the parts into a literary whole (interpretation). Thus the "parts" and the "whole" make for adequate understanding of the literary work.

The very nature of critical thinking may preclude that there is more than one answer to a given question, or that there may be several ways to reach the same solution. Therefore, it is wise for the educator to prepare the student for Close Reading by assigning "pre-reading" activities. This helps the student by anticipating an aspect of the selection to be read and helps the student engage in types of affective responses. The assignments should be a part of the student's everyday occurrences or feelings that will reflect on the theme of the literary work; e.g., frustrations, being a hero, true nature of friendship, etc. This is an excellent exercise for the LD students as it allows them to travel from the concrete (familiar themes) to the abstract (literary characters and themes). It allows them to realize that occurrences in their lives are universal. They are given a handle for comparison and insight by defining their feelings. Comparisons may well be made during Close Reading by getting the student to apply what is being read, as it is being read, in the same fashion. Post-reading activities should include students writing comparisons to their own life experiences. Goba (1990) recommends in this post-writing activity that agent, audience, medium, and message be varied.

In an interesting study, Jaben (1986) included 50 learning disabled students in an experiment using the Purdue Creative Thinking Program. All of the subjects were part of an intermediate self-contained LD classroom. There were 25 subjects (10 girls, 15 boys) in the experimental group and 25 subjects (13 girls, 12 boys) in the control group. The program consisted of 28 audio tapes and printed exercises and was administered in the following manner:

1. a three to four minute segment designed to teach a principle that would improve a critical thinking skill
2. a 10-12 minute story about an American pioneer
3. three or four exercises relating to the story content.

Students who were able to worked independently, while teachers assisted those with word recognition problems. Spelling, writing, and grammar errors were ignored. The experimental group received two, 45 minute lessons per day for 14 weeks. Results were measured by the Torrance Tests of Creative Thinking (pretests and posttests).

The LD students did significantly better on the verbal and figural subtests than the students who were not part of the experimental group. Based on the findings, Jaben (1986:343) concluded, "Programming such as employed in this investigation appears to be beneficial in stimulating the cognitive thinking in students who are labeled learning disabled."

In a study conducted by Idol (1987), the author was intent upon finding a method whereby a heterogeneous group including five LD children could be taught to improve reading comprehension skills using large group instruction. The method used had to accommodate the mainstreamed, the low achieving, and special need children in the group. Data collected by Idol revealed that these children received poorer instruction in the classroom than did the other children. Historically, these students were taught word recognition rather than comprehension skills, teachers spent less time with them in reading groups, used fewer preparatory questions or remarks, and provided little opportunity for them to move to higher reading groups.

In an effort to avoid differential treatment and ability grouping, Idol (1987) devised a story mapping technique incorporating the students' prior knowledge and experiences with new information. Instruction was given as to the interrelated components of a story and caused the student to search within known experiences while reading the text for information. The method also allowed the low achiever to be exposed to the desired responses given by the more skilled readers.

The teacher began by modeling a desired response followed by the gradual shaping by teacher-assist or lead phrases. The last phase called for independent responses without teacher assist. The story map included:

1. The Setting
    a. characters
    b. time
    c. place
2. The Problem

3. The Goal
4. The Action
5. The Outcome

The model is presented to the student in a block effect with arrows showing the interrelation of the components. The outcome of this method was positive. Idol (1987:200) reported, "All targeted students, learning disabled and low achieving, showed positive shifts in comprehension when story mapping was introduced."

As a by-product, improved listening skills and writing behaviors were noted as was evidenced in student journals. Idol (1987:203) further noted that "the progress of the normally achieving children was not impeded by including low achievers in the group instruction."

Schlicheter (1988) maintained that enrichment models or training students in the thinking and feeling processes are appropriate for all students, regardless of levels of ability and that these skills remain underdeveloped in today's schools. Although the need to teach these skills is evident, educators have not as yet come to terms with (1) which skills need to be taught, (2) definition of the skill, (3) how to properly teach the skill, (4) time needed to teach the skill, and (5) how to properly assess the skill.

Schlicheter (1988), based upon research, contended that modeling and demonstration by teachers of the gifted may help the regular classroom teacher in learning to teach these necessary skills. Teachers of the gifted must provide models, demonstrations, and materials that will integrate these skills across the content areas. Further, Schlicheter emphasized that teaching critical thinking is not a "frill" nor is it a separate subject but, rather, enhances academic objectives.

Schlicheter has developed Talents Unlimited (TU), a research-based model for teaching these skills based upon definitions of 19 thinking skills in the areas of productive thinking, decision making, planning, forecasting, and communication. Productive thinking generates varied, unusual solutions and helps the students add interesting details. The decision-making aspect includes outlining, weighing facts, making intelligent final judgement, and being able to defend a decision once it has been made. A student then will need a scheme for implementing ideas that will include an objective, identifying resource needed, sequencing of steps, and recognizing problems in a plan. Organizational skills and attention to detail are necessary in the planning stage. In the forecasting stage, the student will need to recognize cause and effect and should be given practice in predicting outcomes given a set of circumstances. Finally, the student should be taught to communicate ideas and feelings based upon descriptive words and nuances of meanings. Students learn to deal with objectivity, variety, clarity, and expressiveness.

Will (1987) discussed merits of using The Junior Great Books program in teaching critical thinking skills to students. The program is appropriate for use with students from second grade through senior high school. It is based upon the processes of interpretative reading and "shared inquiry." A series of follow-up questions are presented to the class by a designated leader after a selection is read by the group. The leader will ask a series of interpretive (follow-up) questions which in most instances will have more than one answer. The follow-up or interpretive questions are for the purpose of (1) clarifying responses, (2) substantiating opinion by seeking evidence from the text that will support the opinion, (3) soliciting more opinions, and (4) resolving the basic questions. In addition, Will (1987) noted follow-up questions stimulate group response and slow down discussion so that each student may have a chance to be a participant.

Leaders of the group are, likewise, challenged because they must think through the participant's answers so that they may continue to generate interpretive questions. Further, they cannot anticipate all answers that will be given and, therefore, cannot anticipate their own responses. The leader is responsible for bringing all students into the discussion and developing the strategies to do so.

All participants, class and leader, engage in reflective thinking which ensures a full dialogue with the leader controlling "the flow of discussion." As students practice in the leadership role, skill in generating follow-up questions will increase. Leaders should adhere to the following steps:

1. Read the selection twice, reflecting in the second reading on questions that resulted from the first reading.
2. Identify the problems of meaning to be explored with the class by writing basic questions.
3. Give participants time to reflect.
4. Listen carefully to all responses so that ideas do not get lost due to lack of concentration.

Smith (1988), a Professor of Reading at the University of Wisconsin and author of college textbooks and several elementary and middle school reading programs, has developed a higher-level reading comprehension program called Thoughtful Reading. His program was based upon the following principles:

1. Thinking is at the heart of all reading, writing, speaking, and listening behavior.
2. These skills can only be learned through application and practice drawing upon the students' own experiences, ideas, and feelings.

3. Reading experience should be integrated with coordinated writing, speaking, and listening skills.

Each presented reading selection included (1) a reflection activity, (2) vocabulary development so that the students learn that authors choose words to create feelings, (3) comprehension activities whereby the students examine a character's behavior and incorporate it into their own, (4) writing activities that provide thinking and writing skills, and (5) oral language and listening skills putting feelings into thoughtful discussion by presenting open-ended questions. Objective assessment is provided through an optional multiple choice test at the end of each selection that includes both literal and inference questions. In addition, stories may be incorporated across the curriculum.

Science Research Associates, Inc. (1989) presented a series of workbooks and teacher's editions entitled The CoRT Thinking Program based upon the works of de Bona. De Bona is highly regarded as an authority and leading expert in the field of thought. He expounded that thinking should be taught as a separate operating skill and through practice one can learn this skill with increasing proficiency. Further, The Cognitive Research Thrust (CoRT) Program can be used from the age of eight through adult and with slow to gifted learners. The six sets of CoRT Thinking Skills Lessons include:

1. Breadth includes the directions thinking can follow.
2. Organization provides specific operations that can be carried out by the student to make thinking more effective.
3. Interaction encourages students to observe the thinking process in action.
4. Creativity is treated as a normal process of thinking that can be learned and is emphasized by lateral thinking concerned with changing concepts and patterns.
5. Information and feeling are concerned with gathering and assessing information.
6. Action emphasizes thinking in and for action and encompasses the total process of thinking from the purpose to the outcome.

Eldredge (1988) pointed out that educators once believed that reading comprehension was the end product of decoding. Further, teachers realized that simply giving a student a selection to read, followed by the asking of questions, likewise, did not increase comprehension. Out of knowledge that these reading methods were not effective, the Schema Theory was born. Eldredge (1988:1), citing Rumelhart, said "the schemata are mental structures that represent the generic concepts stored in an individual's memory." Thus, reading comprehension is based upon existing knowledge and readers use this knowledge to construct meaning. Experienced readers are, therefore, able to infer information that has not been included in a presented text.

The newer view of reading comprehension is that a text is meaningless unless the reader can call upon a personal interpretive framework and can interact with the author's words to create meaning from the written text. Therefore, reading comprehension is an interactive process (holistic) that includes (1) prior experience, (2) decoding skills, (3) semantic and syntax language skills, and (4) thinking abilities, all focusing on effective use of background knowledge.

Eldredge (1988), modifying Heckelman's Neurological Impress Method, set up a technique for improvement in reading skills which he called "dyad reading" or buddy reading. A "lead" student reader replaced the teacher and an "assisted" reader (the student that did not decode well) were assigned to work in pairs. Both students sitting side-by-side read aloud from the same book. The lead reader touched each word as it was read with the assisted reader attempting to read along. In this holistic approach, literature books were used. The outcome indicated that the students involved in the "dyad" approach made greater achievement gain overall than the matched control group using basals.

Rowe (1985) noted the importance of encouraging students to become aware of strategies which they can apply to reading situations. Therefore, the implication exists that students, rather than teachers, must be in control of the strategies used. The students learn to activate knowledge that they already possess, self-generate questions, and train themselves to find the "why," "when," and "where" by learning to "look back" in the text.

Rowe (1985:82) stated that "readers are little more than functionally literate" if they do not learn to draw inferences, summarize and identify major themes, make use of other communication skills such as illustrations and mental imagery, and understand metaphors and analogies. Rowe looked at transactive processes that require the reader and text to "come together" in ways that create totally new meanings and form connections between that which exists for the reader and that which can be learned. In planning an effective lesson framework, Rowe contended that there are generally four steps. These include (1) establishing a purpose for reading, (2) requiring the reading of a passage, (3) requiring performance of a task that reflects the reading purpose, and (4) providing feedback that demonstrates comprehension based on the task performance.

Wallach and Miller (1988) insisted that students be exposed to high quality literature and that reading aloud to the student is most beneficial. By the read aloud strategy the student is provided with appropriate adult models. They learn through this modeling technique that there are people who value good literature, who discuss it, who read it, who are willing to share it with others, and who are able to interact with the literature. The authors concurred that introducing aesthetics to the student through a high-quality literature approach is an added benefit which authors of basal readers eliminate in their efforts to simplify tasks.

Frank (1987) maintained that students should be allowed to write on their own. Experiences to this end may be accomplished through diaries and journals, in learning centers, and on independent projects. "However, kids do not learn the writing process effectively unless someone teaches it to them, step by step" (Frank, 1987:5). Topics for writing should include ones that spark imagination and interest. Process writing includes strategies that teach students to collect and organize ideas, write a rough draft, criticize and revise written material, emphasize specific writing skills, and share the finished product with an audience. Frank outlined the skills in the following manner:

1. Romancing - Getting the student excited about the topic.
2. Collecting - An extension of the romancing stage--brainstorming the topic.
3. Writing - Choosing, organizing, and combining the "raw material."

4. Praising - The reinforcing of good writing techniques (the teacher accentuates the positive).
5. Polishing - Reorganizing, refining, and rewriting.
6. Showing Off - Giving a purpose to a piece of writing--sharing with an audience.

It should be noted that students are taught to ask questions and make suggestions that will be helpful to other writers.

Strategies that will significantly reduce the over generalization produced by stereotyping were presented in a paper published by the Florida Department of Education (1990). The paper stated that multi-cultural education can provide students and educators with the wherewithal to deal with the ever increasing influx of foreign and minority students into our public schools and that these strategies can be both positive and beneficial to all. Cooperative learning experiences provide students with the opportunity to form harmonious relationships, to increase understanding and respect, to foster self-confidence, and to glean knowledge of the various cultures. The Florida Department of Education (1990:4) publication further stated that:

> Cognitive strategies can be helpful. Critical thinking instruction that develops skill in cognitive complexity to recognize oversimplification and over generalization and differentiate between relevant and irrelevant characteristics of people have been shown to have some effect.

Educators must insist upon high expectations and strategic goal setting from these students as they would from all students. To demand less would be doing the students a grave injustice and deprive them of the opportunity to fulfill potential. Further, adjustments should be made in the academic framework that will reduce the need for the student to bear the full burden of adaptation to a seemingly established and unaccommodating environment.

Strategies for inclusion in the research portion of this project were selected for their relevance to the writer's practicum and their feasibility in application to the learning disabled, multi-cultural targeted student population. Each strategy cited was incorporated into the implementation of the project either in its entirety or modified to fulfill a particular need. For example, use of The Close Reading strategy and The Schema Theory call upon students to incorporate personal experiences and to analyze and interpret selections. Tapes, as suggested by Jaben (1986), honed in on listening skills and promoted discussion. The strategy of story mapping enabled students to isolate or incorporate a targeted skill in writing behaviors.

The Talented Unlimited Model as presented by Schlicheter (1988) helped students generate productive thinking, learn to use organization skills often lacking in LD students, and provided practice in making inferences, predicting outcomes, and recognizing cause and effect.

According to Lerner (1989:382), "Learning Disabled students have been characterized as strategy deficient." The following strategies are particularly useful for improvement in reading comprehension and higher order thinking skills:

1. learning to use advanced organizers
2. searching or scanning materials before answering a question
3. verbalizing problems (verbal rehearsal)
4. self-monitoring
5. questioning strategies (generating questions that stimulate thinking processes).

All these strategies are incorporated in The Junior Great Books, Thoughtful Reading and The CoRT Programs.

Creative writing was a culminating exercise for each targeted skill to further demonstrate proficiency in that skill. To this end, the writer made use of the process-writing model as presented by Frank (1987). Respect for the multi-cultural aspect of the targeted group and the need for enhancement of self-esteem in these students was accomplished through the incorporation of cooperative learning, peer tutoring, and peer modeling in the implementation of this project.

CHAPTER III

Method

McGinnis and Smith (1982:252) noted:

> Reading is a thinking process. The teacher can facilitate the reading proficiency by helping the reader to set purposes for his reading that encourage the higher mental thought processes and by fostering discussion following silent reading by raising questions that involve interpretation, analysis, synthesis, and evaluation.

In light of this statement, the research done, the uniqueness of the targeted group, their special needs, the variance in modalities, and various processing deficits, the writer implemented a plan that fully submerged each student in the learning process. The writer's role was one of facilitator rather than lecturer. Learning, to these students, oftentimes was a tedious affair. Therefore, a multi-disciplinary, multi-sensory (VAKT) approach provided something for everyone. The implementation plan was built on the premise that cognitive learning can be facilitated and reinforced by stimulation of more than one avenue of learning or one sensory approach.

The higher order skills presented each had a 2-1/2 week cycle, eight lessons per cycle, each lesson between 45 minutes and one hour. It was best to present and have mastery of one skill at a time, for to incorporate and test all four targeted skills over a

10-week period would simply cause confusion for the students. Sequencing of skills was as follows:

Cycle 1 - Main Idea (Appendix H:72)

Cycle 2 - Cause and Effect (Appendix I:84)

Cycle 3 - Making Inferences (Appendix J:89)

Cycle 4 - Fact and Opinion (Appendix K:100)

Pretesting of the four skills was accomplished before implementation and posttesting was done on each specific skill at the ending of the 2-1/2 week cycle. Mid-cycle informal testing was accomplished by making use of reading center materials, including SRA, Barnell-Loft, and The Critical Reading Program by Oceana Publications. The included diagnostic materials all provided for self-evaluation and for instant feedback, noting if progress in the skill was being made. Results were discussed and monitored during a facilitator/student conference, and decisions for mid-course corrections were made at this time.

Each cycle was planned to include activities that drew upon a multi-sensory approach as well as provided optimum experiences in critical thinking skills. The worksheets selected were each specifically based on the targeted skill and each called for creativity on the part of the student rather than a simple question-answer format. The use of tapes enhanced listening skills, and the following discussions gave each student the opportunity to put thought concepts into words.

Each cycle included the construction of a handbook. Concept cards, pretests and posttests, as well as all the learning activities, experiences, and creative worksheets comprised the folder that can be used for further review and reference. Use of newspapers, magazines, The Junior Great Book Series, and high interest reading stories provided the students with silent and oral reading experiences that allowed them the opportunity to delve into materials that were not in a specific textbook or basal.

The program was designed to sneak in learning while the students participated in a program that was enjoyable and rewarding. A non-threatening atmosphere was provided for through the use of peer tutoring and cooperative learning. Many of the activities were accomplished in groups where ideas were readily shared.

The reading center activities, likewise, stressed the targeted skill and were changed with each cycle. These activities were self-checking and provided for immediate feedback. An art center provided a kinesthetic/tactile approach, and the theme was a visual of the targeted skill. The students worked independently at this center in their spare moments, or a group worked together.

A culminating creative writing experience took place at the completion of each 2-1/2 week cycle. At this time, the student further displayed mastery of the targeted skill by incorporating it into the theme. The writings were oftentimes humorous and always thought provoking.

The following day-by-day diary is included to facilitate a greater understanding of just how the plan unfolded. It should be noted that the worksheets included in the appendices were especially selected because of the feasibility of reproduction for student use and for their appropriateness in clarifying the skills that were presented.

Week 1 - Main Idea (Appendix H:72)

Day 1:	Pretest: Construction of a Main Idea Handbook, writing of a Main Idea Concept Card (flash card with a workable definition on the reverse side), writing of a short-term objective or goal for this concept.
Day 2:	Students listened to a tape and read-along story "Erie Tales." They discussed why people enjoy stories of the extraordinary. Children verbalized the main idea of each of the three short stories. Students chose a title for an original "Erie Tale" (may be science fiction). They discussed narrowing of a topic sentence.

Day 3: The students read silently and orally "The Mouse Bride" from The Junior Great Books series. A child was chosen as a leader to generate questions. The main idea of several paragraphs was noted. The overall main idea of "freedom" was discussed.

Week 2 - Main Idea

Day 1: From The Modern Curriculum Skill Book the students dramatized two situations: (1) Things that went wrong and (2) everyone laughs in different ways. The students chose the main ideas from a summary worksheet.

Day 2: From High Action Reading the students read the story "The Lady With The Lamp." The main idea worksheets were presented in pictorial and paragraph form.

Day 3: The "Story of Volcanoes" was read. This offered scientific facts. "Long Ago In Pompeii" allowed the students to find the main idea of each paragraph. Art Center materials and worksheet for making a volcano.

Week 3 - Main Idea

Day 1:	Culminating Activity - Creative Writing - Cliffhangers. Students read two cliffhangers: "The Great Spaghetti Disaster" and "A Stranger Lurking." From a list of main ideas each student wrote a cliffhanger (completed for homework). Story mapping included (1) title, (2) main idea, (3) three or more details, and (4) no conclusion.
Day 2:	Students solved and evaluated creative writing efforts. Evaluations became a part of each student's handbook. Students summarized concept. A posttest was administered and graded for instant feedback. Students discussed if goals were met.
Day 3:	Cause and Effect (Appendix I:84): Students prepared handbook, made a concept card, and wrote a goal.
Day 4:	The students read "The Happy Prince" from The Junior Great Books series. A student was chosen to generate questions. The students discussed causes and effects as the story

unfolded and discovered that reality is crueler than fantasy.

Week 4 - Cause and Effect

Day 1: Field Trip to the Airport: The students kept a diary of causes (why) and effect (what happened) on their way to and from the airport and as they learned new information on their tour.

Day 2: Newspaper story "The Killer Bees": On an experience chart the students listed many causes and effects from the newspaper article. They underlined causes in red and effects in blue as the paragraphs were read.

Day 3: Students were presented with "what if" situations on a humorous worksheet. This worksheet further demonstrated cause and effect. They were encouraged to generate a "what if" list of their own (fact, fantasy, humorous).

Week 5 - Cause and Effect

Day 1: Students listened to a tape called "The Old Indian Legend." They noted cause and effect on a worksheet entitled "The Great Turtle." They discussed causes and effects of good luck charms and amulets. At the Art Center - Self-hardening clay was set up for students to make amulets. They decided upon a legend for their amulet.

Day 2: Creative Writing - Warnings: Students read "Don't Say You Haven't Been Warned" (situations that have humorous outcomes). They wrote on "Things You Have Been Warned Not To Do" and "To Do" (cause and effect) according to the learned writing process.

Day 3: Students summarized the concept, shared and evaluated their creative writing efforts, and were posttested.

Week 6 - Inferences (Appendix J:89)

Day 1: Students constructed handbooks, concept cards, and wrote a goal. They listened to a tape of "Aesop's Fables" and inferred lessons to be learned.

Day 2: The students read "The Goldfish" from *The Junior Great Books* series. A student leader generated questions. Students inferred moods, feelings, outcomes, author's purpose, analogies, etc. They inferred it was best to experience all that they possibly could in a lifetime.

Day 3: The students inferred meanings from presented idioms and picture puns. Art Center - Materials for creating poster of idioms; e.g., lost in thought, wagging tongues, out of this world, hitting the nail on the head, heart-to-heart, flying off the handle, nose for news, drop a line, etc.

Week 7 - Inferences

Day 1: Students completed worksheet "Supermarket Secrets." They inferred what the articles in a grocery bag would say to each other if they could talk and what their feelings would be.

Day 2: Students worked on similes and metaphors using one to create an original poem.

Day 3: Students inferred from details in newspaper lost and found articles which dog was which.

Week 8 - Inferences

Day 1: Creative Writing - A Detective Thriller: Students inferred from a list of characters, clues, and alibis who committed the crime. They inferred motives for the crime. They then set up and wrote their own thrillers according to the creative writing process using characters, suspects, clues, motives, and alibies.

Day 2: Students shared and solved mysteries. They summarized concepts and were posttested.

Day 3: Fact and Opinion (Appendix K:100): Students prepared handbooks, concept cards, and wrote goals. They listened to a tape of "Grimm's Fairy Tales," discussing fact, fantasy, and opinion.

Week 9 - Fact and Opinion

Day 1: Presented with various situations (worksheet) the students expressed in debate form and listed pros and cons. Views presented were identified as fact or opinion.

Day 2: Jumping to Conclusions: From situations given the students listed facts needed to be known before coming to a conclusion. They stressed the difference between fact and gossip. Students were presented with an illustrated worksheet of characters.

Day 3: Assumptions: Students stated whether assumptions were based on fact or opinion. An illustrated worksheet was provided for each student. They discussed the merits of doing research to prove a point.

Week 10

Day 1: Students critiqued articles and newspaper ads (worksheets) sorting fact from opinion. They evaluated source credibility and how they were influenced by the material. They decided what facts are needed to make intelligent decisions. Art Center - Colored Poster Boards, Newspaper - Spray fixative to create a collage using newspaper ads. Each student wrote a catchy slogan for each poster.

Day 2: Creative Writing - Just Reporting The Facts: Students read a humorous account called "The Ice Cream Incident." They decided what was exaggerations, what was opinion, and what was fact. They were then given a picture of incidents that happened "At The Balloon Race." As witnesses they wrote according to the creative writing process an accurate report based on fact. They were careful to eliminate confusing parts, personal opinion, or exaggerations.

Day 3: Students compared their eye witness accounts and evaluated their writing processes. They summarized the concepts and were posttested.

CHAPTER IV

Results

Evaluation was based upon the objectives stated and consisted of a three-pronged process. Evaluative techniques used were:

1. The targeted students demonstrated a mastery score of 80 percent accuracy on the posttest in each of the four targeted higher order reading comprehension skills. Comparisons between pretest and posttest scores were noted for each student in each skill.

Table 2

Comparison of Pretest and Posttest Scores For The Four Targeted Higher Thinking Skills Given in Percentages

Student	Skill 1* Pre-Post		Skill 2* Pre-Post		Skill 3* Pre-Post		Skill 4* Pre-Post	
A	50	90	75	87	40	80	62	84
B	50	80	25	87	50	85	46	84
C	50	100	0	87	50	80	69	92
D	50	80	75	87	60	90	77	84
E	30	70	38	76	50	80	77	84
F	50	80	38	100	40	95	54	100
G	60	60	0	87	20	85	46	92
H	20	60	38	87	15	80	62	84

*Skill 1 - Main Idea (Appendix D:60)
Skill 2 - Cause and Effect (Appendix E:65)
Skill 3 - Making Inferences (Appendix F:67)
Skill 4 - Fact and Opinion (Appendix G:70)

Note: Informal tests taken from Barnell-Loft and "The Critical Reading Program" by Oceana Publications.

2. The targeted students demonstrated proficiency in the four targeted skills by incorporating each skill in the creative writing process presented as a culminating activity at the

termination of each 2-1/2 week cycle. Comments as to success are included by the writer based upon evaluation of the final written product, by oral questioning, and by observation. Proficiency results are noted on a checklist form for each student (Appendix L:110).

3. An informal attitudinal discussion was held and comparison made between responses for the pre-practicum basal approach and the presented non-basal approach.

Table 3

Oral Attitudinal Survey Tabulated in Number of Student Responses

Questions	Pre-Practicum Basal Approach Negative Response	Pre-Practicum Basal Approach Positive Response	Non-Basal Approach Negative Response	Non-Basal Approach Positive Response
Do you like to read to yourself?	6	2	1	7
Do you read at home?	6	2	2	6
Do you like to read to your class?	7	1	0	8
Do you read for fun or as a hobby?	8	0	3	5
Do you like your reader?	7	1	4	4
Do you visit the city library?	5	3	2	6
Do you like someone to read to you?	0	8	0	8
Would you like to receive a book for your birthday present?	7	1	2	6
Do you think you read well?	7	1	2	6
Is reading well very important for later on?	4	4	0	8

It should be noted that when the targeted students reached a mastery level of 80 percent accuracy in each of the deficient four skills as denoted by the SSAT scores, the writer considered the skill as properly remediated. The findings were then noted on the SSAT charts of each student as having met the minimum objective for that skill. It should also be noted that the exclusion of a norm-based standardized test as a criteria for mastery was purposeful.

Considering the language/cultural uniqueness of the targeted group, a norm-referenced test would not have been entirely valid.

Analysis of the three-pronged process of evaluation pointed conclusively to the success of the project. In some skills three of the students did not attain the 80 percent posttest goal. However, this may still be attributed to language barriers as these students were the ones who most recently arrived in the United States. In sum total all targeted students made appreciable gains in all areas and were most proud of their accomplishments.

At the onset of the creative writing projects, all the targeted students wrote hesitantly. They displayed much difficulty in generating ideas and organizational skills. Further, they were extremely shy when participating in the brainstorming process. They verbalized that they didn't want to be "laughed at." With practice the students began to internalize the steps of the process to the point that self-evaluation and rewriting became automatic. The skill of story mapping greatly aided in refining organizational skills. All were able to incorporate the targeted skills in the writing process. At the termination of the project, all students participated eagerly in the brainstorming process and proudly shared their finished products with peers, teachers, and administrators. This, of course, was their ultimate success.

As noted on the oral attitudinal survey the students grew from "reluctant readers" to "enthusiastic readers." They asked to borrow books from the writer's library for home use. Most began to freely volunteer to read orally across content areas (as reported by classroom teachers). Some students reported that they began to make visits to the library and were eager to tell their peers and this writer about the books that they read outside the classroom.

Finally, each of the students was able to be placed in a more difficult basal for, according to final testing on the WRAT-R, five of the students improved from one to two years on their reading scores. The three remaining students were reevaluated by the school psychologist and because their scores showed such marked improvements, they no longer qualified for special learning disabled classes. Subsequently, these students will begin middle school in regular classrooms next year. As an aside, it must be noted that behavioral problems and "acting out" greatly diminished in both the LD lab and the regular classrooms as these students began to take pride in their accomplishments. Two of the students received "The Turn Around Award" at graduation (from a population of all the fifth graders) as voted on by all the fifth grade teachers.

CHAPTER V

Recommendations

It is the responsibility of all educators to share ideas and theories with colleagues in an effort to make the educational system an ongoing, ever-changing, dynamic institution that benefits all students. The writer, in an effort to make these resources available to others, demonstrated two lessons to a supervisor in the field of learning disabilities and to a visiting principal. In both instances the presentations were met with much enthusiasm. These visits paved the way for other educators to make observations as implementation of this project unfolded.

It has been suggested that activities as presented in this project be incorporated into a workshop on critical thinking skills for all staff members. Copies of the activities and suggestions for implementation will be provided for colleagues in the Learning Disabilities Department as well. Demonstrations will be presented to parents at various meetings throughout the next school year, emphasizing that these strategies are beneficial to all students.

A manual for parents and teachers explaining critical thinking skills will be made available by the writer. Information included in the manual will be based on materials collected at a workshop presented by Williams (1990) (Appendix M:119). Williams has given full consent for this material to be incorporated into this practicum as the value is evident.

Currently, process writing is being lauded by researchers and educators as a most effective means of providing students with a "holistic" approach to learning language arts. The creative writing checklist, as developed by the researcher, will be made available to staff members in order to facilitate evaluation of the writing process. The checklist may be used by students as a means whereby they may self-evaluate a writing product. Most importantly, generation of other lessons design, based upon the non-basal, creative writing follow-up will be ongoing. Higher-order thinking skills, other than the four presented, will continue to be taught using these strategies and procedures. Last, worksheets that are included in this practicum will become a part of a school-wide bank to provide remediation for SSAT skills.

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APPENDICES

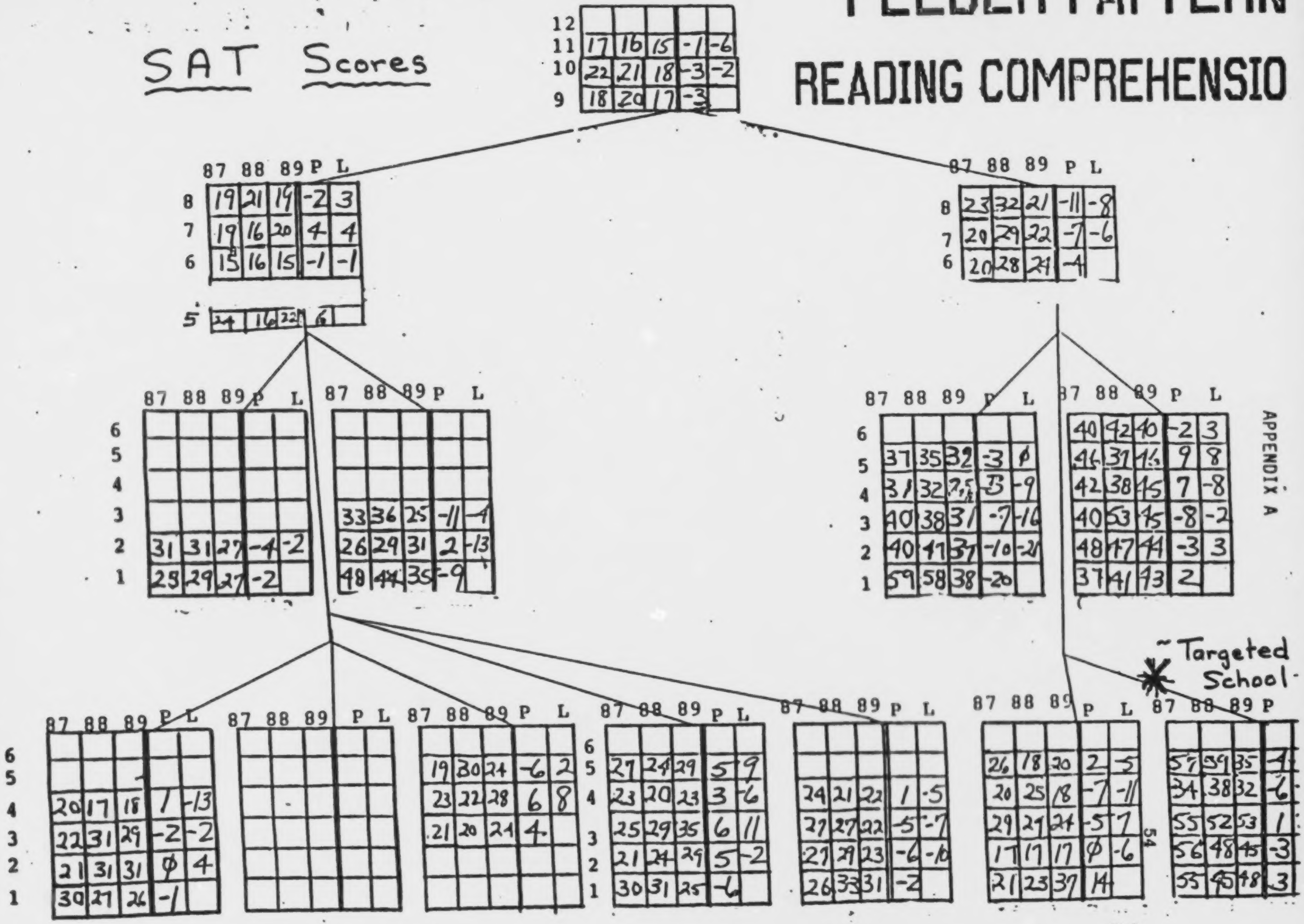
APPENDIX A

SAT Scores Feeder Pattern

FEEDER PATTERN

READING COMPREHENSIO

SAT Scores



	87	88	89	P	L
12					
11	17	16	15	-1	-6
10	22	21	18	-3	-2
9	18	20	17	-3	

	87	88	89	P	L
8	19	21	19	-2	3
7	19	16	20	4	4
6	15	16	15	-1	-1
5	24	16	22	6	

	87	88	89	P	L
8	23	32	21	-11	-8
7	20	29	22	-7	-6
6	20	28	24	-4	

	87	88	89	P	L
6					
5					
4					
3					
2	31	31	27	-4	-2
1	29	29	27	-2	

	87	88	89	P	L
6					
5					
4					
3	33	36	25	-11	-4
2	26	29	31	2	-13
1	48	44	35	-9	

	87	88	89	P	L
6					
5	37	35	32	-3	0
4	31	32	[illegible]	-13	-9
3	40	38	31	-7	-16
2	40	41	31	-10	-21
1	59	58	38	-20	

	87	88	89	P	L
6	40	42	40	-2	3
5	46	37	46	9	8
4	42	38	45	7	-8
3	40	53	45	-8	-2
2	48	47	44	-3	3
1	37	41	43	2	

	87	88	89	P	L
6					
5					
4	20	17	18	1	-13
3	22	31	29	-2	-2
2	21	31	31	0	4
1	30	27	26	-1	

	87	88	89	P	L
6					
5					
4					
3					
2					
1					

	87	88	89	P	L
6					
5	19	30	24	-6	2
4	23	22	28	6	8
3	21	20	24	4	
2					
1					

	87	88	89	P	L
6					
5	27	24	29	5	9
4	23	20	23	3	-6
3	25	29	35	6	11
2	21	24	29	5	-2
1	30	31	25	-6	

	87	88	89	P	L
6					
5					
4	24	21	22	1	-5
3	27	27	22	-5	-7
2	27	29	23	-6	-10
1	26	33	31	-2	

	87	88	89	P	L
6					
5	26	18	20	2	-5
4	20	25	18	-7	-11
3	29	29	24	-5	7
2	17	17	17	0	-6
1	21	23	37	14	

	87	88	89	P
6				
5	57	39	35	-4
4	34	38	32	-6
3	55	52	53	1
2	56	48	45	-3
1	55	45	48	3

APPENDIX A

APPENDIX B

Parent Letters

APPENDIX B

Parent Letters

March 1, 1990

Dear Parents:

Beginning approximately mid-March, your child will take part in a practicum for Nova University. The practicum involves teaching higher order (critical thinking) reading comprehension skills to the Learning Disabled (LD) student.

Intense emphasis will be placed on these skills daily. We shall be using creative writing, newspapers, The Great Books Literature Series, library books, special high interest reading passages, special projects, exercises, and special strategies.

Evaluation will consist of pretests and posttests to monitor progress. It is expected that each of the eight students targeted will make considerable improvement in each skill within the 10-week time frame. This program will take up only a portion of the time spent in the LD lab.

Confidentiality of each student involved in the project is assured.

Kindly sign this letter and return it to me along with any comments or concerns you may have. Thank you for your cooperation. I am certain that this project will be of great benefit to your child.

Sincerely,

S. Solomon
LD Teacher

APPENDIX C

Teacher Survey

APPENDIX C

Teacher Survey

March 1, 1990

Dear Colleagues:

The attached names of Learning Disabled students have been targeted as subjects to take part in a practicum for Nova University.

The practicum will involve teaching higher order (critical thinking) comprehension reading skills to LD students.

To this end, your input would be immensely beneficial. You may comment on the group as a whole or note anecdotes for individual students. Please refer to students on a first name basis only. Confidentiality, as always, is assured.

If possible, kindly return this survey to my mailbox within the week.

Many thanks. Your cooperation is more than appreciated.

Sincerely,

Sheila Solomon
SLD Teacher

BEHAVIORS:

ACADEMICS:

SOCIAL:

OUTSTANDING QUALITIES OR TALENTS:

QUALITIES OR BEHAVIORS THAT MAY NEED ATTENTION:
(e.g., psychological)

METHODS OR STRATEGIES THAT STUDENT HAS RESPONDED TO:

METHODS OR STRATEGIES THAT TURN THE STUDENT OFF:

OTHER COMMENTS:

APPENDIX D

Test - Main Idea

APPENDIX D

Test - Main Idea

1. Who is the oldest astronaut? It is Miss Baker. She is the famous monkey who was shot into space in a Jupiter rocket in 1959. In 1981 Miss Baker had her twenty-fourth birthday. That is equal to age 168 in a human!

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2. West Point is a special college where people study to be U. S. Army officers. Only a few years ago, the first women were allowed to enter. Margaret Haese soon joined her brother Bill at the school. They became the first brother and sister to graduate from West Point.

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3. Eyebrows do more than just call attention to the eyes. Eyebrows serve a useful purpose. If we had no eyebrows, drops of perspiration would run down into our eyes. We couldn't see very well. Also, perspiration isn't very clean.

---

4. When people think of an animal with a trunk, they think of an elephant. Other animals such as tapirs, some seals, and the African elephant shrew also have trunks. The African shrew is but six inches long. For many people it is difficult to picture such a small animal with a trunk.

---

5. Portuguese, who fish for a living, once faced a problem. Their sails took them out to the fishing grounds in the morning. But in the evening the sea breezes fell. How could they reach land? They sent up huge kites. The kites caught the breezes high above and pulled them to shore.

APPENDIX D

Main Idea

1. The story mainly tells:

   (A) When the Jupiter rocket went into space
   (B) Why Miss Baker is famous
   (C) How Miss Baker got to be 168

---

2. The story mainly tells:

   (A) Why Margaret and Bill are special
   (B) Why West Point let women enter
   (C) Why Margaret likes the Army

---

3. The story mainly tells:

   (A) How perspiration helps the eyes
   (B) How our eyebrows help us
   (C) Why people need big eyebrows

---

4. The story mainly tells:

   (A) How trunks help animals
   (B) What elephant trunks are like
   (C) Which animals have trunks

---

5. The story mainly tells:

   (A) What the Portuguese caught
   (B) How the Portuguese used kites
   (C) What the kites were like

Main Idea

1. One of the world's most amazing sailors was an unknown Eskimo. About the year 1700, this Eskimo went fishing off icy Greenland in a tiny, one-person boat called a kayak, and must have become lost in a fog or storm. Months later, the Eskimo was rescued off Scotland—on the other side of the Atlantic.

---

2. If all your family—parents, grandparents, aunts, uncles, and cousins—got together, how many would there be? The Livingston family of New York State got together not long ago. Over four hundred people showed up. They came from as far away as Texas.

---

3. Rattlesnakes do most of their hunting at night. They do not locate their enemies by sight. They can tell just where the enemy is by the heat the enemy gives off. The snakes have a pair of organs that tell them the location of their warm-blooded enemies.

---

4. What is the smallest town in the United States? Geography students have searched the maps and come up with an answer. They claim that the smallest town is Alvin, North Carolina. The total population of Alvin is just ten persons!

---

5. The sheets in hospitals are not always white. Operating rooms often use green linen. The linen for children's rooms is sometimes pink or blue. Using a color system makes it easier to identify the part of the hospital to which linens must be sent.

Main Idea

1. The story mainly tells:
   - (A) Where Greenland is located
   - (B) How many miles the Eskimo traveled
   - (C) Why the Eskimo was amazing

2. The story mainly tells:
   - (A) Where all the Livingstons live
   - (B) Why the Livingstons got together
   - (C) How big a family can be

3. The story mainly tells:
   - (A) How rattlesnakes use their eyes
   - (B) What rattlesnakes are like
   - (C) How rattlesnakes locate their enemies at night

4. The story mainly tells:
   - (A) Why the town is small
   - (B) What the smallest town is
   - (C) Where the smallest town is located

5. The story mainly tells:
   - (A) Why green linen is used
   - (B) What a linen color system is
   - (C) Where to buy colored linen

APPENDIX E

Test - Cause and Effect

Test

IDENTIFYING CAUSE AND EFFECT

(Understanding Actions and Reactions)

On this page you will find two *CAUSES*. You will also find many *RESULTS OR EFFECTS* of these causes. Match each cause with *as many results or effects* as you can. *Some of the EFFECTS may fit both of the causes.*

CAUSES

1. It was Susan's birthday.
2. It was Halloween eve.

EFFECTS

a. She made a long wish, closed her eyes, and blew out every candle on the cake.

b. Her room was decorated with all of the cards that she had received.

c. Everyone laughed so hard that it was difficult to bob for the apples in the large pan.

d. That most unusual cake was made in the shape of a haunted house.

e. The floor came alive with the colors of the beautifully wrapped presents.

f. Shelly won the prize for the most original costume.

g. Little children rang the doorbell all evening and recited the familiar words.

h. Everybody said that it was the best party they had ever attended.

APPENDIX F

Test - Inferences

APPENDIX F

Test
Inference

1. "The kitchen floor is so clean and polished that I can see my reflection in it," said Dick. "Did you use something special to get it looking so good?"

"No," replied his uncle. "I did it the same way I always do it. It shines because I just finished cleaning it."

---

2. On Saturday, the weather was warm and sunny. Cindy looked out her bedroom window and smiled. Today was the day of the big parade. Cindy opened her closet and took out her band uniform. She was glad that her mother had remembered to have it cleaned and pressed.

---

3. Bobby took a bite of the pumpkin pie. "This pie tastes very good," he said, "but the crust is too hard. I think it was cooked too long."

"What do you know about cooking pies?" asked Helen. "You've never cooked any pies in your life! All you do is eat them."

---

4. "You should take better care of yourself," advised Mrs. Barry. "If you don't eat better and get more rest, you're going to ruin your health."

"You're probably right," said Ralph, "but I like hot dogs, and I like watching TV. I look at TV every night and still feel fine in the morning."

---

5. "Are you ready to walk home with me?" asked Carla. "It's getting late, and our parents will be looking for us."

"Yes, I'm ready to go," said Barbara. "I only wish we had brought our umbrellas or raincoats. It certainly looks as if it's going to rain."

APPENDIX F

Test
Inference

	T	F	I
1. (A) Dick's uncle used a special cleaner on the floor.	☐	☐	☐
(B) Dick thought the floor looked very good.	☐	☐	☐
(C) Dick helped his uncle clean the floor.	☐	☐	☐
(D) After a while, the floor won't shine so brightly.	☐	☐	☐

	T	F	I
2. (A) It was a good day for a parade.	☐	☐	☐
(B) Cindy was going to march in the parade.	☐	☐	☐
(C) The big parade was on a Saturday.	☐	☐	☐
(D) Cindy went to the cleaners to get her uniform.	☐	☐	☐

	T	F	I
3. (A) Helen had cooked the pumpkin pie.	☐	☐	☐
(B) Bobby said something good about the pie.	☐	☐	☐
(C) Helen thought that Bobby was an excellent cook.	☐	☐	☐
(D) Bobby didn't taste the pumpkin pie.	☐	☐	☐

	T	F	I
4. (A) Mrs. Barry thinks that Ralph sleeps too much.	☐	☐	☐
(B) Ralph watches TV at night.	☐	☐	☐
(C) Ralph eats a great many hot dogs.	☐	☐	☐
(D) Ralph always feels tired in the morning.	☐	☐	☐

	T	F	I
5. (A) Barbara and Carla were going to walk home together.	☐	☐	☐
(B) Carla and Barbara were going to take a bus home.	☐	☐	☐
(C) Carla was going to have to wait for Barbara.	☐	☐	☐
(D) Barbara was afraid it was going to rain.	☐	☐	☐

APPENDIX G

Test - Fact or Opinion

APPENDIX G

FACT OR OPINION

1. The mountains are prettiest in winter.
2. Skiing is a winter sport.
3. Sometimes children play in the street.
4. Playing in the street is dangerous.
5. Drivers of cars should travel carefully through city streets.
6. There are many interesting animals at the zoo.
7. The zoo is more fun than the circus.
8. Everyone should try to save energy.
9. Tuesday is the best day in the week.
10. I like third grade better than second grade.
11. The sun gives us light.
12. Everybody likes to play kickball.
13. It is fun to be left alone.

APPENDIX H

Worksheets - Main Idea

Spooky, Scary Stories

The first time I told my big sister that I heard a strange creature tap-tap-tapping on the 73 window, she said that it was my imagination. Then she heard the sound, but she said it was just the trees scratching against the window. Suddenly, the window began to open and a gnarly, white hand reached into the room. My big sister turned as pale as the thing that was slowly climbing through the window!

The telephone rang at the newspaper office.

"Strange, misty shapes are 'hanging' around the town hall making shrill noises!" a hysterical voice wailed.

"Carter!" yelled the night editor, "Get over to City Hall and check out this story. Maybe you'd better take a ghost-blaster with you . . . some weirdo thinks that there are spirits floating in the air!"

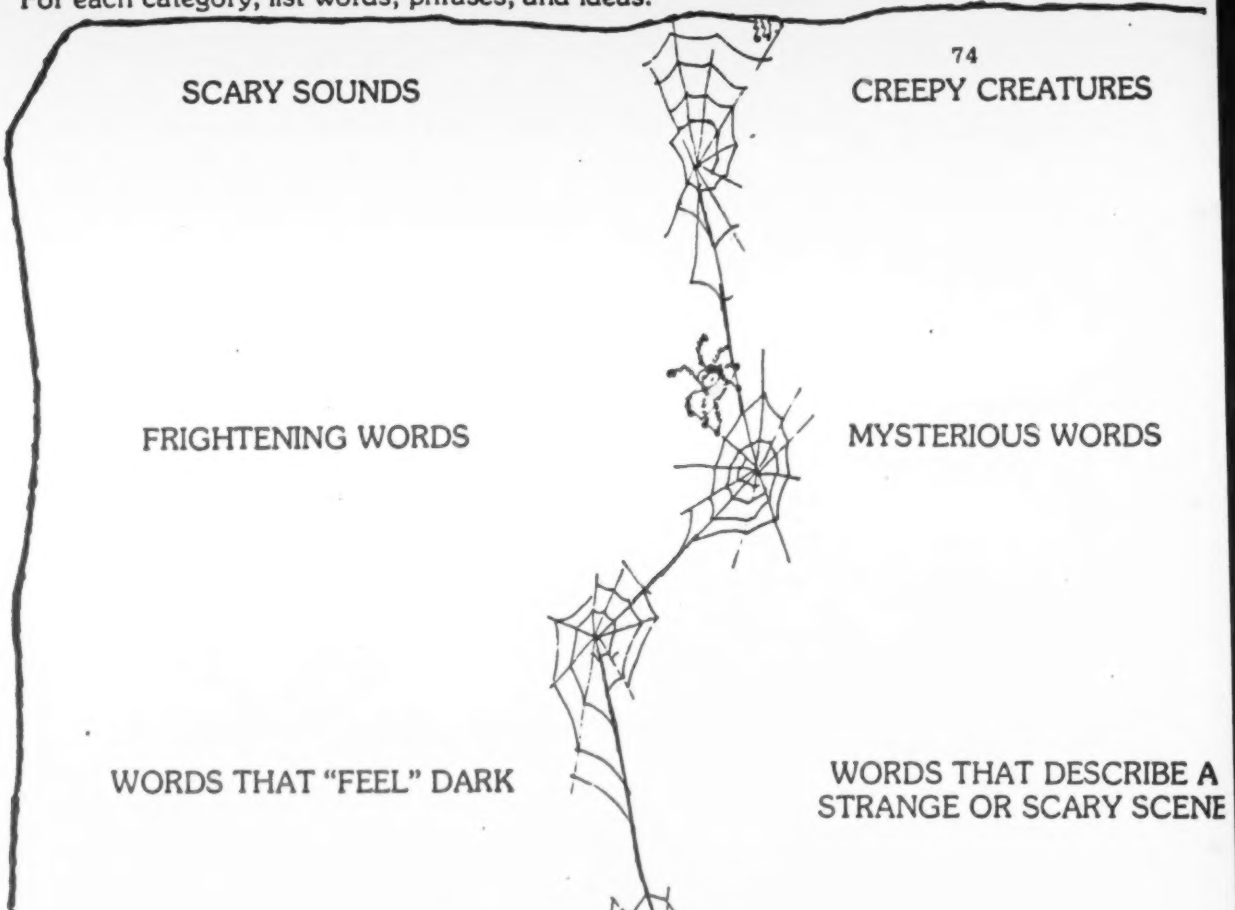
I wondered why Mom and Dad got such a good deal on this house. I know why now – no one else wanted to live in it! I discovered this the day we moved in the house. My little brother and I followed our parents up the broken, creaking stairs. We walked across a porch filled with cobwebs and then through a heavy, black door. We found ourselves standing in a hall as dark and damp as the inside of a whale!

I DO BELEIVE THAT THIS IS THE BEST GHOST STORY I HAVE EVER WRITTEN!

Examples

Things That Go "Thump" In The Night

For each category, list words, phrases, and ideas.



SCARY SOUNDS

CREEPY CREATURES

FRIGHTENING WORDS

MYSTERIOUS WORDS

WORDS THAT "FEEL" DARK

WORDS THAT DESCRIBE A STRANGE OR SCARY SCENE

ACTION VERBS FOR EERIE STORIES

WORDS THAT TELL HOW YO FEEL IN SCARY SITUATIONS

Student Page

THAT'S THE IDEA!

The **main idea** is the most important thing the writer says about a topic.

Read the paragraphs below. Under each paragraph put a check next to the main idea of the paragraph.

1. Everything seemed to go wrong that morning. When Sid got out of bed, he tripped over his slippers. Then, he pulled a button off his new shirt. Next, he spilled orange juice all over the kitchen floor. It was just one of those mornings.

   ____ a. The slippers were in Sid's way.
   ____ b. Sid would have to clean up the orange juice.
   ____ c. That morning several things went wrong.

2. Have you ever listened to how different people laugh? My uncle has a loud, deep laugh. He opens his mouth wide to let it out. My little brother giggles a lot. He puts his hand in front of his mouth as if to hold the giggle back. My sister's laugh is high. It starts, then it stops, and then it starts again. Everyone laughs in a different way. I wonder how I sound when I laugh.

   ____ a. A loud laugh is better than a giggle.
   ____ b. People can't hear how they sound when they laugh.
   ____ c. Everyone laughs in a different way.

THE LADY WITH THE LAMP

The young woman walked quietly through the large room. She held a lamp. In its light she looked at the long rows of beds. On each bed a soldier lay sleeping. They were far from home. They were here to fight for their country. Their country, England, was at war. The year was 1855. These English soldiers were fighting for a piece of land called the Crimea. This land is near the Black Sea.

The night was quiet. The guns had stopped firing at last. The woman with the lamp hoped the fighting would not start again. She knew these sleeping soldiers could fight no more. They were hurt and sick. Her job was to help them get well. She was every bit the soldier these men were. She was also here to fight for England.

The woman's name was Florence Nightingale. But the soldiers called her "the lady with the lamp." Seeing Florence Nightingale and her shining lamp made them feel less afraid. They knew how hard she worked. They knew how many lives she had saved.

Florence Nightingale was a nurse. She took care of people who were sick or hurt. Even as a child Florence had wanted to be a nurse. But in those days not much was known about caring for the sick. Nurses did not have special training. They just did what they thought would make people feel better. But Florence had a different idea. She decided to learn everything there was to know about helping sick people. She read books. She worked in hospitals. She watched what doctors did. In time there was little she did not know about this work.

Then Florence began to hear news about the war. Many soldiers had been hurt in the fighting. Many had died. Florence knew the time had come to use what she had learned. She asked a group of other nurses to help her. In November 1854 the women left for the war. They went to an army hospital halfway around the world.

The nurses were badly shaken by what they saw. The hospital was filled with dying soldiers. Many lay on the floor. There were no beds for them. Some soldiers had no care at all for days. They were covered with dirt. They were hungry. It was the worst hospital Florence had ever seen.

The nurses went to work right away. They cleaned the hospital from top to bottom. Soon there was not a spot of dirt anywhere. They made beds for the soldiers. They got clean cloths to cover their wounds. And they made sure each man had hot food every day.

More and more soldiers got well. Florence and her nurses were fighting side by side with the English soldiers. The women were at war too. But they were *saving* lives.

After the war Florence returned to England. She continued her work. She started a school for nurses. She showed them new and better ways to care for the sick. News of her work spread. Hospitals became cleaner. The sick were given better food. More people got well faster than ever before. Florence Nightingale made it all happen.

The "lady with the lamp" brought the world closer to the hospital care we know today.

The following words may require preteaching: hospital, nurse, soldiers, wounds, army.

APPENDIX H

THINKING ABOUT THE MAIN IDEA

The most important idea in a paragraph is called the **main idea**. Sometimes there is a sentence that tells the main idea. Other times you must use the **details** to help you figure out the main idea.

Read each paragraph about Florence and her work. Circle the words that tell you the main idea.

1. A hundred years ago not much was known about caring for the sick. Nurses did not have special training. They just did what they thought would make people feel better.

The main idea of this paragraph is
a. today nurses spend many years learning how to care for sick people.
b. a hundred years ago people were often sick.
c. a hundred years ago little was known about helping sick people.

2. The soldiers lay awake in their beds. They were waiting for Florence Nightingale. Seeing Florence and her shining lamp made them feel less afraid. They knew how hard she worked. They knew how many lives she had saved.

The main idea of this paragraph is
a. Florence knew the soldiers could fight no more.
b. the soldiers believed that Florence had done much to help them.
c. Florence always carried a lamp when helping the soldiers.

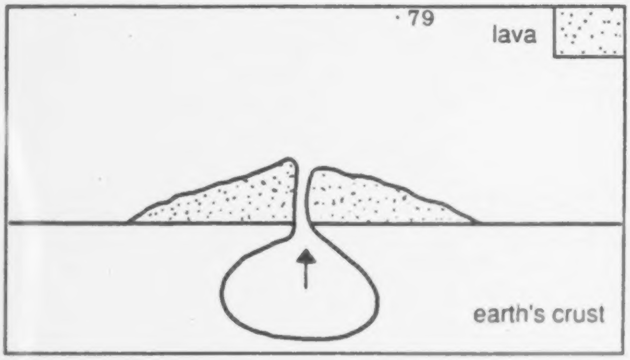
3. After the war Florence returned to England. She continued her work. She started a school for nurses. She showed them new and better ways to care for the sick. News of her work traveled throughout England.

The main idea of this paragraph is
a. Florence was happy to return to her home.
b. Florence worked in many hospitals caring for the sick.
c. Florence taught others her new ways of caring for the sick.

Name ________________________________ ______ Vocabulary

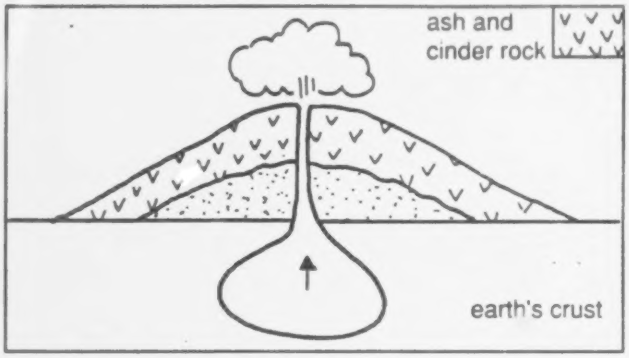
Volcano Building

Some volcanoes are made of many layers.


79
lava
earth's crust

Hot, melted rock flows up through the crust. This is called **lava**. The lava cools and becomes hard.

Color the layer of lava red.


ash and cinder rock
earth's crust

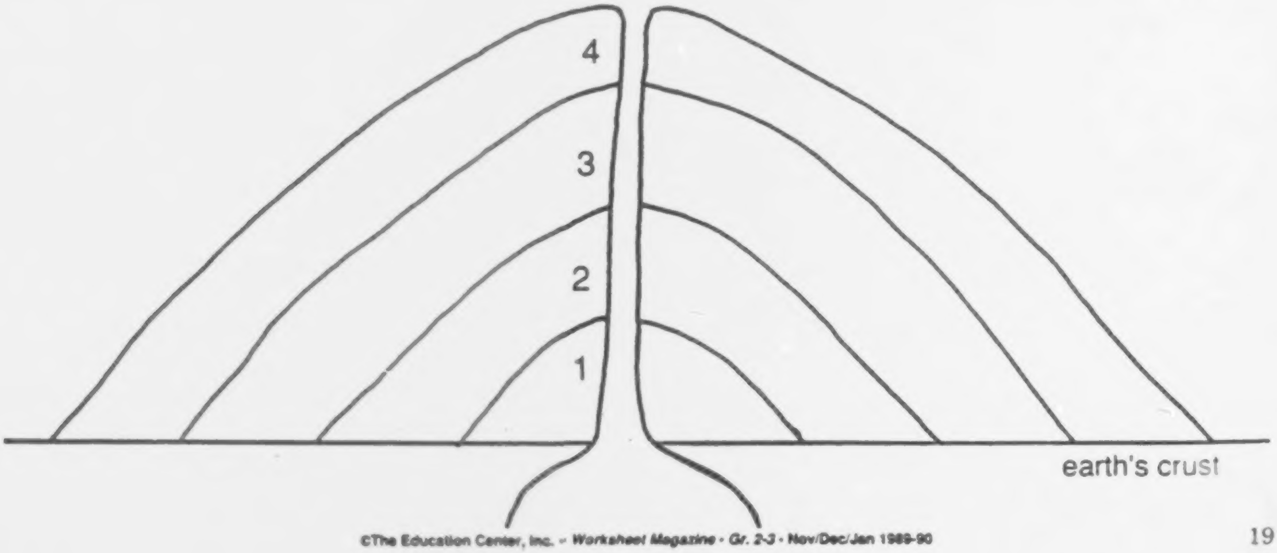
Solid material may explode out of the volcano. This is called **ash** and **cinder rock**.

Color the layer of ash and cinder rock gray.

Look at the volcano below.
Draw in the design for each layer.
Color each layer.

Layer 1: lava
Layer 2: ash and cinder rock

Layer 3: lava
Layer 4: ash and cinder rock


4
3
2
1
earth's crust

Name____ Recalling facts

Volcanic Energy

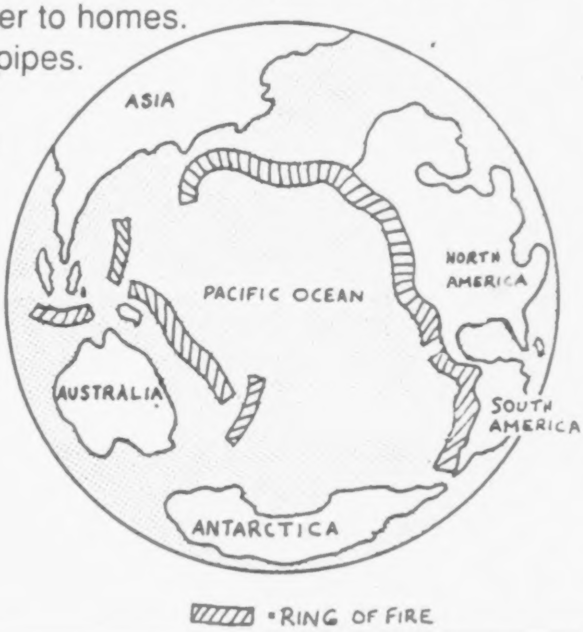
There are many volcanoes on earth. Many are near the Pacific Ocean. The volcanoes form a chain around the Pacific. The chain is called the Ring of Fire.

Central America has volcanoes. The soil near the volcanoes is very good. Ash from the volcanoes helps the soil.

Iceland uses volcanoes for heat. Hot rocks heat water underground. The hot water is put in pipes. The pipes carry hot water to homes. Farmers warm their fields with the hot water pipes. They can grow more crops.

In the United States, parts of California are volcanic. Hot steam is pumped out of the ground. The steam turns motors. The motors make electricity for cities.

Scientists study volcanoes. They try to find out when volcanoes will erupt. They try to predict eruptions. Scientists teach us how to use volcanic energy.



Read each sentence beginning.
Cut and paste to complete each fact.

1. Ash from volcanoes	
2. Hot volcanic rocks	
3. Soil that is warmed	
4. Volcanic steam	
5. Scientists study volcanoes	

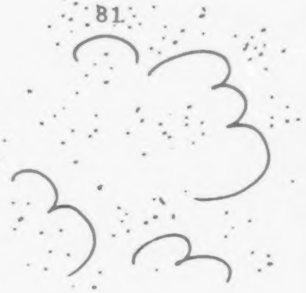
heat water for homes.	can turn motors.
makes very good soil.	to use them for energy.
can grow more crops.	

Name ______________________________ Main idea

Long Ago In Pompeii

Choose the best title for each paragraph.
Write it on the line.

81



____

Pompeii was a beautiful city. Many people lived there. Other people liked to visit Pompeii. The people living in Pompeii were a lot like us. They had stores, homes, and gardens.

____

Pompeii was near an inactive volcano. It was called Mount Vesuvius. The mountain was very old. Its crater was filled with rocks. Vesuvius had not erupted for a long time.

____

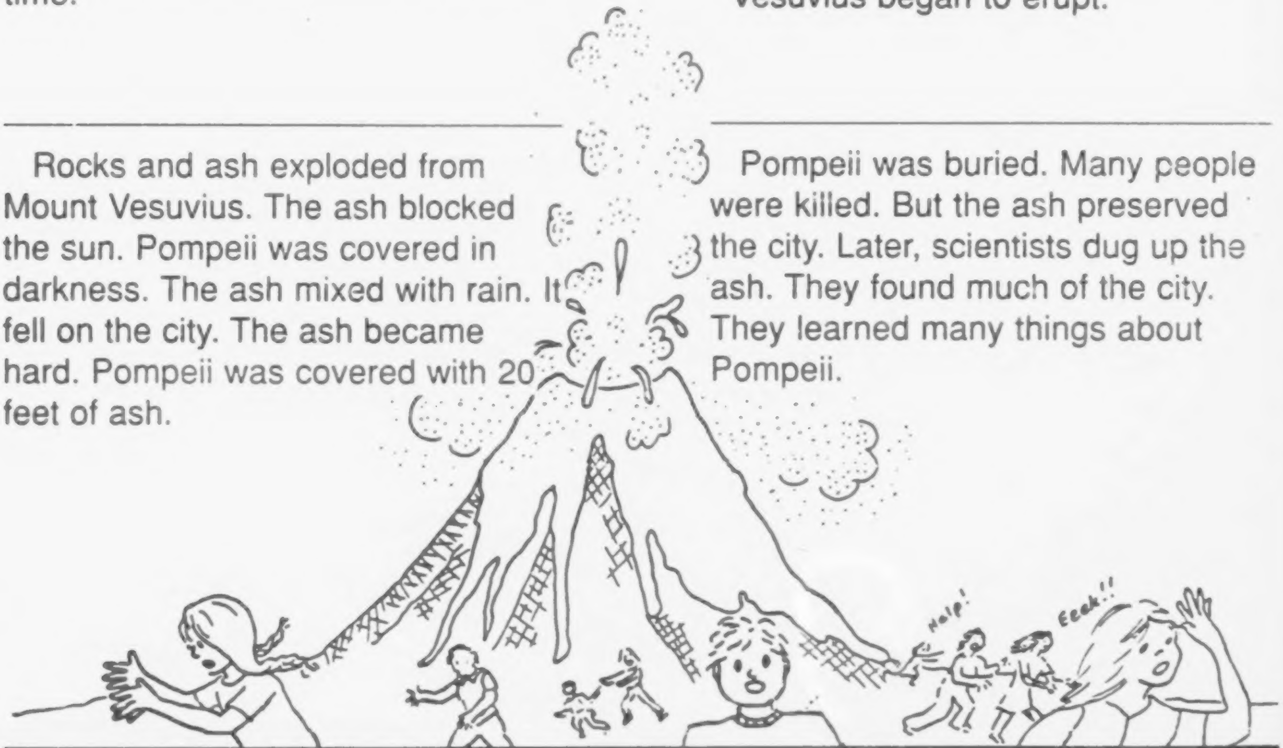
One day everything changed. An earthquake shook the city. The earthquake frightened the people. Many people ran away from Pompeii. After the earthquake, Mount Vesuvius began to erupt.

____

Rocks and ash exploded from Mount Vesuvius. The ash blocked the sun. Pompeii was covered in darkness. The ash mixed with rain. It fell on the city. The ash became hard. Pompeii was covered with 20 feet of ash.

____

Pompeii was buried. Many people were killed. But the ash preserved the city. Later, scientists dug up the ash. They found much of the city. They learned many things about Pompeii.



TITLES

Life In Pompeii
Earthquake!
Ash Covers The City
Pompeii Is Preserved
The Mountain Called Vesuvius

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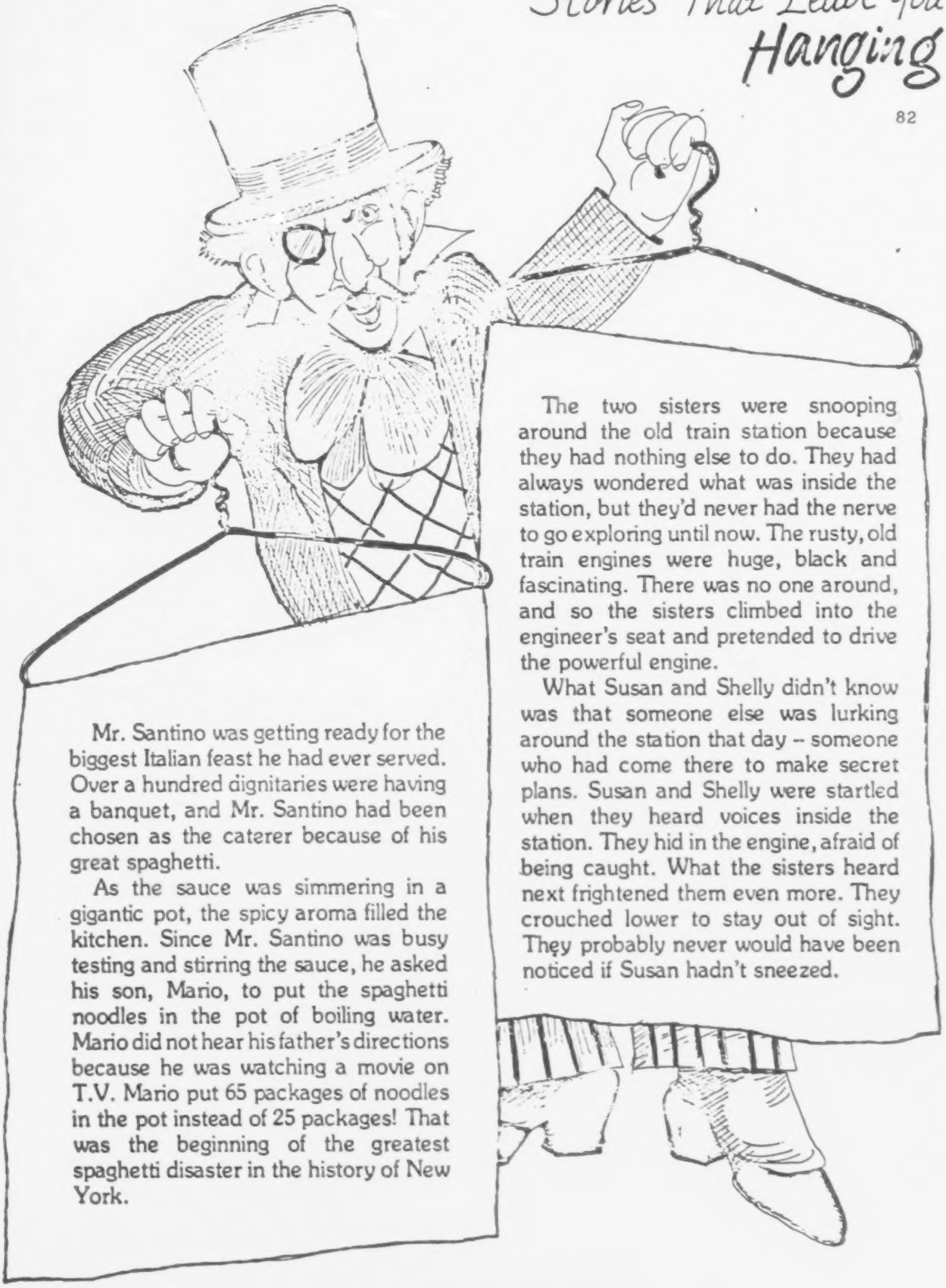
APPENDIX H

Stories That Leave You Hanging



Mr. Santino was getting ready for the biggest Italian feast he had ever served. Over a hundred dignitaries were having a banquet, and Mr. Santino had been chosen as the caterer because of his great spaghetti.

As the sauce was simmering in a gigantic pot, the spicy aroma filled the kitchen. Since Mr. Santino was busy testing and stirring the sauce, he asked his son, Mario, to put the spaghetti noodles in the pot of boiling water. Mario did not hear his father's directions because he was watching a movie on T.V. Mario put 65 packages of noodles in the pot instead of 25 packages! That was the beginning of the greatest spaghetti disaster in the history of New York.

The two sisters were snooping around the old train station because they had nothing else to do. They had always wondered what was inside the station, but they'd never had the nerve to go exploring until now. The rusty, old train engines were huge, black and fascinating. There was no one around, and so the sisters climbed into the engineer's seat and pretended to drive the powerful engine.

What Susan and Shelly didn't know was that someone else was lurking around the station that day -- someone who had come there to make secret plans. Susan and Shelly were startled when they heard voices inside the station. They hid in the engine, afraid of being caught. What the sisters heard next frightened them even more. They crouched lower to stay out of sight. They probably never would have been noticed if Susan hadn't sneezed.

Beguiling Beginnings

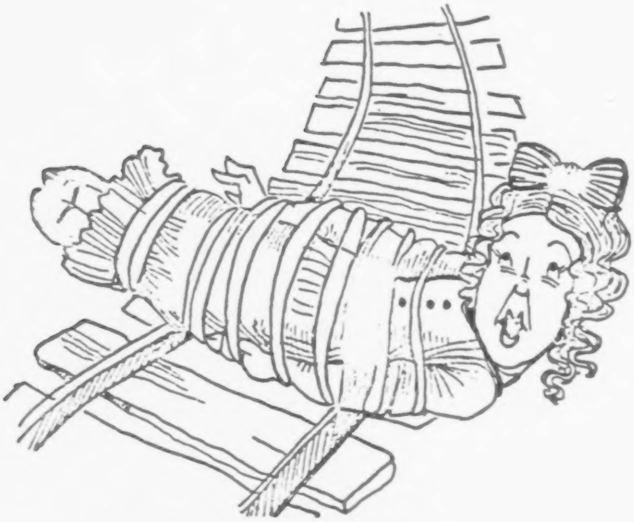
APPENDIX H

A. Never before had Tamara dared to open the door at the top of the stairs.

B. One day Tamara decided to go exploring upstairs in her grandmother's house.

C. That day was the windiest day of the year.

D. The wind was so fierce that trees bent to the ground, dishes fell out of cupboards, and 200-pound Mr. McGurdy crashed into the window of Druther's Drug Store.



Improve each beginning below.

E. I was on my way home from school one day when something happened.

F. Last summer I went on the most exciting camping trip of my life.

G. John and Drew were wandering around town one Saturday afternoon. They couldn't think of anything to do.

H. The day of the 6th grade beach picnic had finally arrived. The picnic started off the same as any other class trip.

APPENDIX I

Worksheets - Cause and Effect

APPENDIX I

WHAT IF?

Below are listed some very interesting situations. Complete each with a sentence or two.

1. What if every time it rained all the cars melted and had to be kept under a roof?
2. What if tennis was played with a baseball and baseball played with a tennis ball?
3. What if you were born old and grew younger?
4. What if grass clippings were as valuable as gold?
5. What if the work week and school week were two days—Saturday and Sunday—and the weekend lasted five days—Monday through Friday?
6. What if golf was played with a Nerf ball, under water?
7. What if pennies were the only currency and people still earned the same amount each week and bread still cost over a dollar a loaf?
8. What if the President of the United States was elected for a lifelong term?
9. What if all newspapers were outlawed?
10. What if the airways were permanently damaged, and all radio and television reception was destroyed forever?

BONUS: On the back of your paper make a list of ten "what ifs" of your own.

by Becky Daniel

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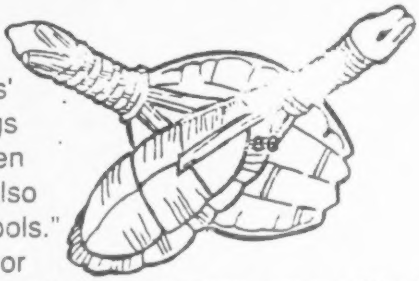
APPENDIX I

Name ______________________________ Writing a story, making an instrument

The Great Turtle



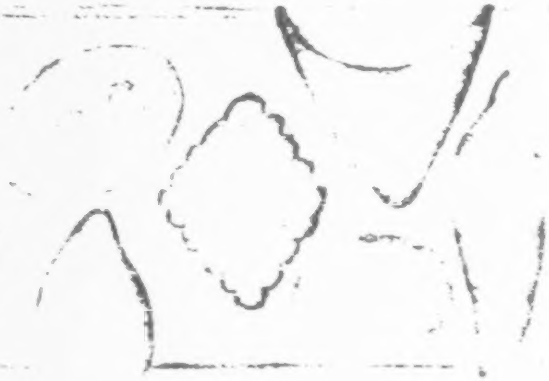
Music was an important part of the Eastern Woodland Indians' ceremonies. Ceremonies were held in celebration of such things as a hunt, harvest, or prayer for rain or health. Rhythm was often supplied by a special drum called a *water drum*. Rattles were also used. The Iroquois called these kinds of instruments "singing tools." Some were made from turtle shells and filled with corn kernels or pebbles. The turtle was held in high esteem. In one Iroquois legend, the turtle was responsible for giving man fire. Another legend said that when the world was formed, the Great Turtle offered its back to support the floating earth.

Write your own legend about the Great Turtle. Consider why the turtle was such a highly prized animal. Continue writing on the back of this sheet.

Good Luck Charms

Many Woodland Indians wore charms or amulets to guard against disease. A warrior believed that his amulet could protect him as well as charm his weapons to ward off enemies. Shells were treasured for their ability to protect against evil spirits. The tooth of an animal gave the wearer the power of that animal.

Have students mold amulets out of clay. Have each child add patterns or pictures to his amulet by etching into its surface with a toothpick or pencil point. Put a hole in the top of each amulet and add a piece of leather lace or yarn. Display the amulets on Museum Day. Have each student attach a nameplate to the display describing the special power of his amulet.



Don't say you haven't been WARNED!

WARNING TO ELEPHANT LOVERS

Never tickle an elephant,
For when an elephant
begins to
Grin, cackle, laugh and
giggle,
An elephant begins to
topple...
And you never want to be
close to a falling
elephant!

WARNING!

If you cross your eyes,
They'll probably stick.

If you eat with dirt
under your fingernails,
You'll become sick!

YOU SHOULD KNOW BETTER

Don't ever put watermelon
seeds
In your nose or your ears,
Or you'll have a melon patch
On your head in a few years.

Your skull will turn green
And form stripes like a rind,
And sticky pink juice
Will drip out of your mind!

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APPENDIX I

Warnings!!

Don't climb that high tree,
You'll surely get hung on a branch.
Leaves will get stuck in your ears,
And birds will drop plops on you!

Things you've been warned not to do:

DON'T LISTEN TO LOUD MUSIC OR YOUR BRAINS WILL BECOME MUSH!

NEVER PLAY WITH ELECTRICITY IN THE BATHTUB.

Things you've been warned to do:

ALWAYS WATCH BOTH WAYS BEFORE CROSSING THE STREET!

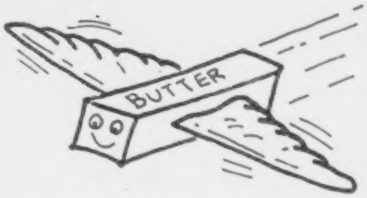
ALWAYS TIE YOUR SHOELACES, OR YOU'LL TRIP OVER YOUR OWN FEET!

APPENDIX J

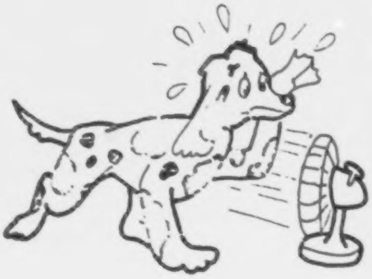
Worksheets - Inference

PUN-CTURES

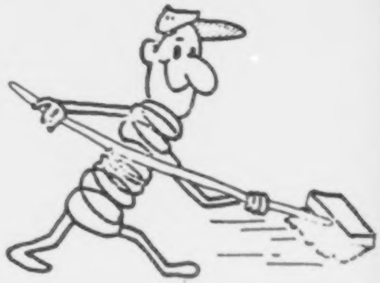
A PUN is a play on words, or the humorous use of a word. A PUN-CTURE is a picture pun. Here are some pictures which show other meanings of common words. Fill in the pictures and create your own pun-ctures in the boxes below. Do the same with the sports pun-ctures on the following page.



BUTTERFLY



HOT DOG



SPRING-CLEANING

ICICLE

WALL HANGING

CUPCAKE

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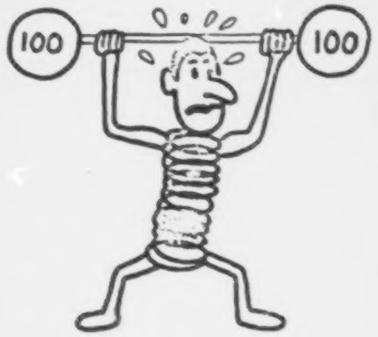
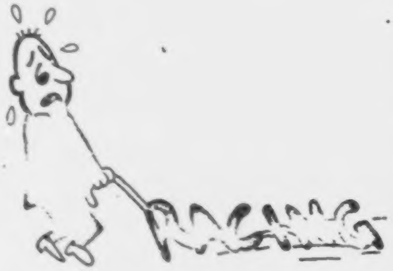
Adapted from the Good Apple publication, *Wonderful Word Games*.

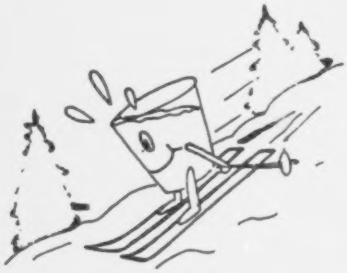
SPORTS PUN-CTURES



SPRING TRAINING



DRAG RACING



WATERSKIING

A HOME RUN

FOOTBALL

TIME-OUT

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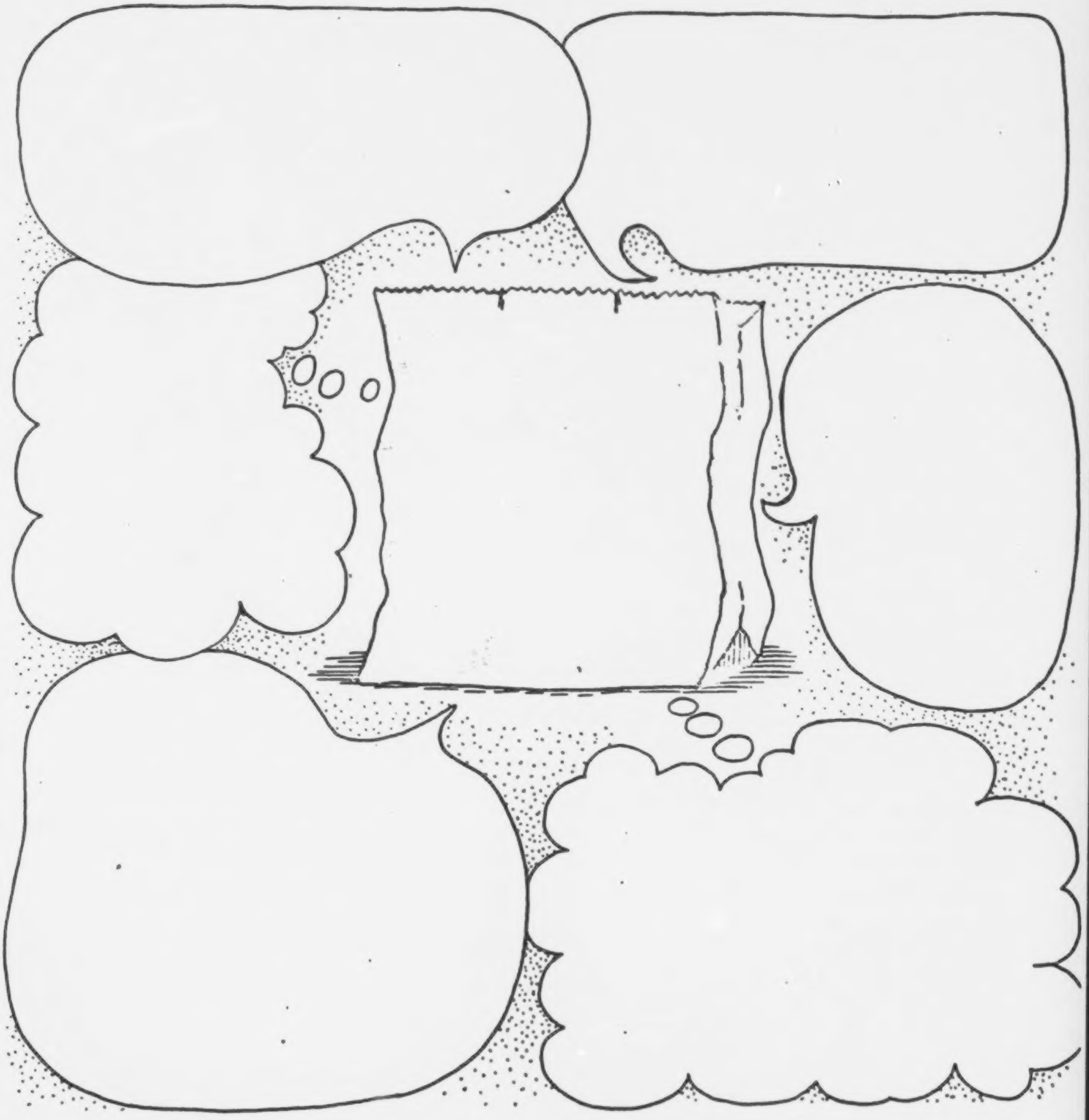
Adapted from the Good Apple publication Wonderful Word Games

Supermarket Secrets!

What would things say to each other in your mother's grocery bag........if they could talk?

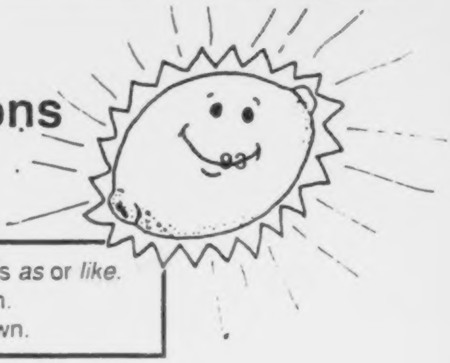


Challenge, Copyright © 1987, Good Apple, Inc., Issue 27

This activity was taken from the Good Apple publication, *I Believe in Unicorns*

Name ______________ APPENDIX J ______________ Similes, metaphors

Composing Comparisons



A *simile* is a comparison of two things using the words *as* or *like.*
Example: The kitten feels like a handful of cotton.
Complete the following similes with images of your own.

1. The wind sounds like ______________________________
2. Fog feels like ______________________________
3. A highway looks like ______________________________
4. A baseball is like ______________________________
5. School is like ______________________________
6. This shirt feels as soft as ______________________________
7. A winter's day feels as cold as ______________________________
8. Race cars speed as fast as ______________________________
9. Being by myself is as peaceful as ______________________________

A *metaphor* is a form of comparison using words such as *is, was, were,* or *are.*
Example: The sun is a ripe lemon.
Complete the following sentences to make interesting metaphors.

1. A rainbow is ______________________________
2. An old house is ______________________________
3. Every star in the night sky is ______________________________
4. Heads of cabbage are ______________________________
5. The roaring fire is ______________________________
6. Moonlight is ______________________________
7. Floating clouds of dust are ______________________________
8. Each stalk of asparagus is ______________________________
9. Sleeping lions are ______________________________

Bonus Box: Using one of the similes and one of the metaphors from above, create an original poem on the back of this page. It may or may not rhyme.

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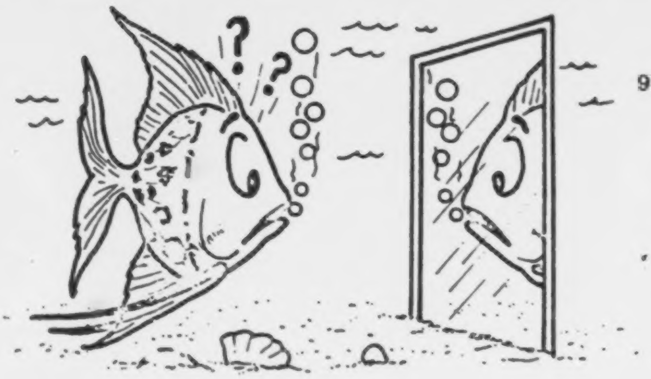
ANALOGIES!



In order to solve analogies, you must determine how the first two items relate to each other. Study the second set and find the word that relates in the same way.

Example: dark : light boy : girl

1. disease : health death : ____
2. mammals : earth aliens : ____
3. canary : cage convict : ____
4. armadillo : insects knights : ____
5. book : literacy numbers : ____
6. flock : bird troop : ____
7. pickles : dill cheese : ____
8. chicken : fried potato : ____
9. conductor : music hall scientist : ____
10. McDonalds : hamburger The Colonel : ____
11. glasses : eyes Dr. Scholl : ____
12. pyramids : tombs skyscrapers : ____
13. Hercules : dwarf ugly : ____

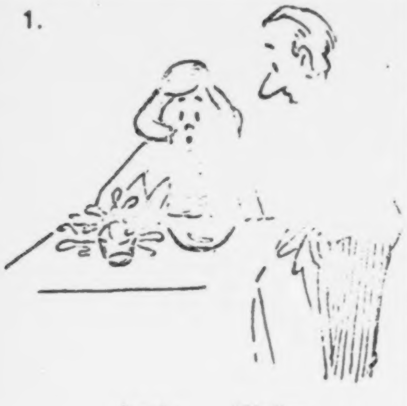
by Kyle Holt, Jenny Whitcomb, and Matthew Heil

APPENDIX J

[illegible] Evaluating Emotional Response to Content

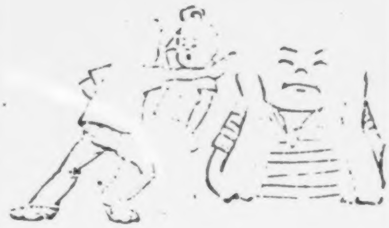
☆ PUT YOURSELF IN SOMEONE ELSE'S SHOES

1.



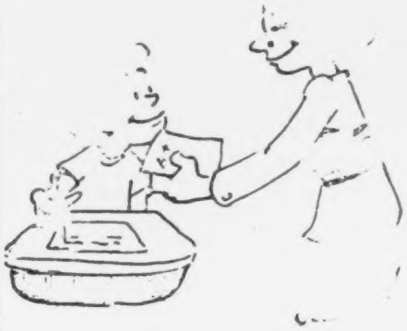
Lady Waiter

2.



Boys Mother

3.



Boy Teacher

angry	bored	disappointed	frightened
excited	hopeful	amused	impatient

1. Someone broke your pencil. ____________
2. You are going on a trip with your family. ____________
3. Your parents say you might be able to go to the movies on Saturday. ____________
4. It is time to leave for a party and your brother won't hurry up. ____________
5. You have baked a cake for your family, and you accidentally drop it upside down on the floor. ____________
6. You hear strange noises when you are at home alone. ____________
7. You are watching some puppies play in a store window. ____________
8. It is a rainy day and you have nothing to do. ____________

AND MORE DETAILS!

Using details can usually help you describe things. The word *describe* means to show or picture something in words.

Read the story below. On page 9 are two lists of details. In each list put a check next to each detail that describes the dog in the story. Then, at the bottom of the page, draw a ring around the answer to the question.

One wet and windy day a middle-sized dog wandered down the street. Water dripped from his long ears. He looked at Anne sadly with his big, brown eyes. It didn't take Anne long to decide to bring him into the house and give him something to eat.

Anne had no idea where the dog had come from. But as she dried his black-and-white coat with a towel, she knew she had to try to find his owner. The dog licked Anne's hand with his pink tongue when she gave him some food. When he wagged his long tail, she noticed that there was a little white spot on the end of it.

The next day Anne read in the newspaper's lost-and-found column that Mr. Gibson and Mr. Porter had each lost a dog. The newspaper described each dog, and Anne knew when she read one of the descriptions that she had found the owner.

When the owner came, Anne was sorry to see him leave with the dog. But she was glad she had been able to help him, and she was sure the dog was glad, too.

1.

Mr. Gibson's dog is missing.

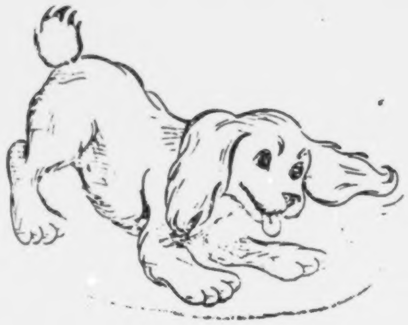
____ a. The dog is middle sized.

____ b. The dog has long ears and a short tail.

____ c. The dog has a pink tongue.

____ d. The dog has a black spot on the end of his tail.

____ e. The dog is almost all white.



2.

Mr. Porter's dog is missing.

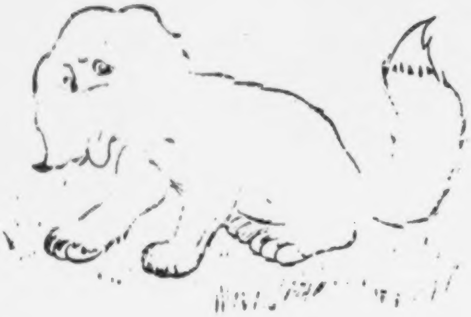
____ a. The dog is middle sized.

____ b. The dog has long ears and a long tail.

____ c. The dog has a pink tongue.

____ d. The dog has a white spot on the end of his tail.

____ e. The dog is black and white.



3. According to the details you checked, whose dog did Anne find?

a. Mr. Gibson's   b. Mr. Porter's

Who Done It?

APPENDIX J

THE CRIME:

At her 4th of July picnic, Ms. Molly McMostess discovers, just after the fireworks display, that all six of her watermelons are missing.

THE SUSPECTS:

BRUISER, THE DOG WHO HAS BEEN SEEN SNIFFING AND STEALING FOOD ALL DAY.

SALLY McMOSTESS, the MISCHIEVOUS DAUGHTER OF HOSTESS MOLLY McMOSTESS.

SLIM FRUITLESS, THE JILTED BOYFRIEND OF SALLY, AND OWNER OF THE FIREWORKS COMPANY.

PRINCESS MUSCLES, THE TOWN'S WEIGHT LIFTING CHAMPION.

LOOIE LIGHTFINGERS, OWNER OF THE GROCERY STORE DOWN THE ROAD.

THE DETECTIVE:

SHIRA SHURELOCK, MASTER CRIME SOLVER!!

THE CLUES:

- There are watermelon seeds on Bruiser's nose.
- There are watermelon rinds near the area where the fireworks were lit.
- Watermelon prices were cheap at Looie's Grocery the following day.
- Princess Muscles' biceps measured two centimeters bigger on July 5 than on July 3.
- Sally moaned all night with a stomachache.

THE ALIBIS:

- Sally was holding her mother's hand during the entire fireworks display.
- Several witnesses swore that Bruiser slept all evening.
- Looie and Princess Muscles were dancing to the music during the fireworks display.
- Slim was busy lighting the fireworks.

WHAT DO YOU THINK?

Who is guilty?
What was the motive?
How did the detective solve the mystery?

The Case Of The Missing Case

This mystery doesn't exist, yet. You must create it!

DESCRIBE THE CRIME:

COMPLETE THE DRAWINGS, NAME AND DESCRIBE THE SUSPECTS:

#1. ____________ #2. ____________ #3. ____________ #4. ____________

#1. ______________________________

____

#2. ______________________________

____

#3. ______________________________

#4. ______________________________

____

____

DETECTIVE:

____

NAME AND DESCRIBE THE DETECTIVE. DRAW HIS/HER PICTURE IN THE BOX.

____

____

LIST THE CLUES/ POSSIBLE MOTIVES/AND ALIBIS:

Put all of the pieces together and write your own detective thriller. Don't forget to tell "who did it" and how the detective solved the mystery. Use the back of this page.

APPENDIX K

Worksheets - Fact or Opinion

APPENDIX K

What Do You Think?

Children should get an allowance every week! Do you agree or disagree? Read each question below and write a *pro* (in agreement) and *con* (opposing) argument [illegible] include reasons for both viewpoints. Even if you strongly believe [illegible] try to see the situation from the other side. Use the back of this sheet for additional space.

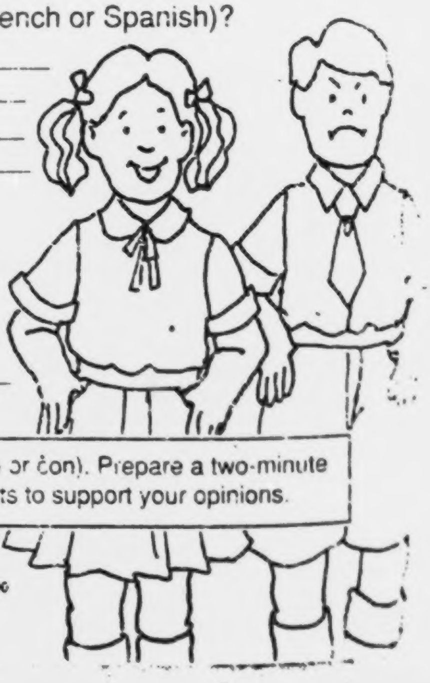
1. Should students be required to wear uniforms to school?
   Yes, ______________________________
   ____
   No, ______________________________
   ____

2. Should the school year be lengthened to 12 months?
   Yes, ______________________________
   ____
   No, ______________________________
   ____

3. Should students be required to participate in physical education?
   Yes, ______________________________
   ____
   No, ______________________________
   ____

4. Should students be allowed to chew gum in school?
   Yes, ______________________________
   ____
   No, ______________________________
   ____

5. Should students be required to learn a second language (like French or Spanish)?
   Yes, ______________________________
   ____
   No, ______________________________
   ____



6. Should the voting age be lowered from 18 to 16 years old?
   Yes, ______________________________
   ____
   No, ______________________________
   ____

Bonus Box: Select one question from above and choose a position (either pro or con). Prepare a two-minute speech to give to your classmates explaining your position. Include several facts to support your opinions.

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APPENDIX K

Name ______________________________ Stating evidence for conclusions

Jumping To Conclusions

Have you ever jumped to a conclusion? Often people make up their minds about a person or situation without first looking at the facts. Read each situation below. First write a conclusion that you might make based only on the information given. Then give the facts you need to know in order to determine if your conclusion is correct. Use the back of this sheet if you need more space.

1. The teacher comes to school one morning in a very bad mood.
   Conclusion: ______________________
   Facts I need to know: ______________________
   ____

2. A friend you have not heard from lately calls and invites you to a sleepover.
   Conclusion: ______________________
   Facts I need to know: ______________________
   ____

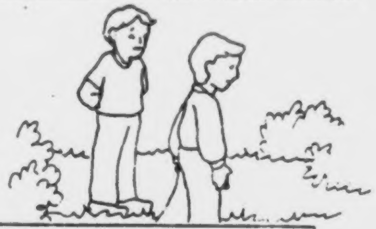
3. Your teacher wants a conference with your parents.
   Conclusion: ______________________
   Facts I need to know: ______________________
   ____

4. Your dog doesn't meet you as he usually does when you get home from school.
   Conclusion: ______________________
   Facts I need to know: ______________________
   ____

5. You receive a large package in the mail, and it's not even your birthday.
   Conclusion: ______________________
   Facts I need to know: ______________________
   ____

6. Your mom has to go out of town over the weekend. She does not say where she is going but assures you that she will be home by Sunday night.
   Conclusion: ______________________
   Facts I need to know: ______________________
   ____

7. When you arrive at school in the morning, your best friend doesn't speak to you.
   Conclusion: ______________________
   [illegible]: ______________________
   ____



Bonus Box: Write a paragraph about a time when you jumped to an incorrect conclusion. Tell when you [illegible] and what could have prevented it.

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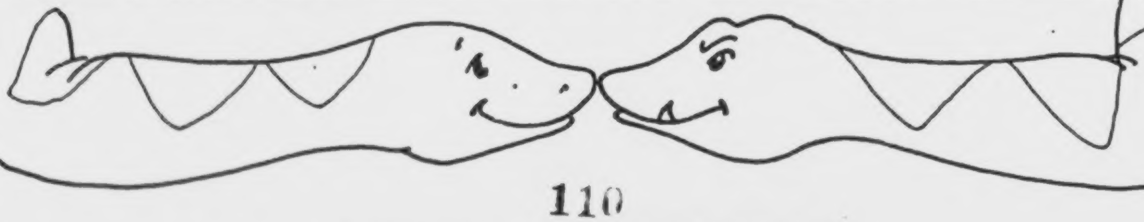
Name ____________ APPENDIX K ____________ Examining assumptions

Do You Believe Everything You Hear?

All snakes are harmful. True? Or only sometimes true? You can test this assumption by doing research. An assumption is a statement or fact that is usually taken for granted. Read the following assumptions. Put a check in the appropriate column if you think the assumption is true, sometimes true, seldom true, or always false. After each statement write how you could test it to see if it is true.

	True	Sometimes True	Seldom True	Always False
1. Cloudy days make people feel sad and depressed. ____________ ____________	___	___	___	___
2. Teachers know all the answers. ____________ ____________	___	___	___	___
3. Cats purr because they are content and happy. ____________ ____________	___	___	___	___
4. Finding a penny will bring you good luck. ____________ ____________	___	___	___	___
5. Girls don't do as well in math as boys do. ____________ ____________	___	___	___	___
6. If you do something a lot, you will be really good at it. ____________ ____________	___	___	___	___
7. Everything you read is true. ____________ ____________	___	___	___	___
8. Watching scary movies causes you to have nightmares. ____________ ____________	___	___	___	___
9. People who wear glasses are intelligent. ____________ ____________	___	___	___	___

Bonus Box: Think of three additional assumptions. Write them on the back of this sheet. Do a survey of your classmates to see how many believe those assumptions. Write how you could test each one.



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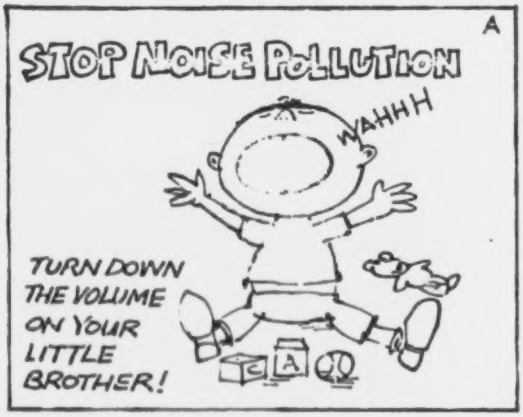
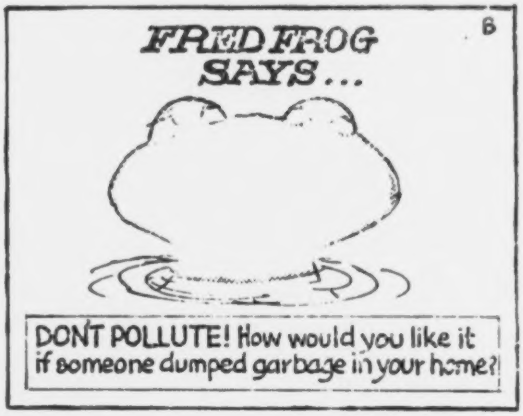
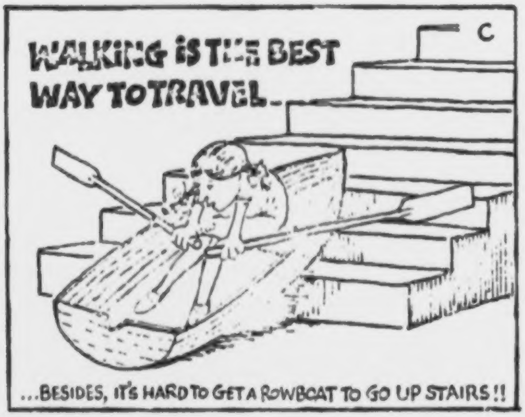
POSTERS CAN BE FUN!

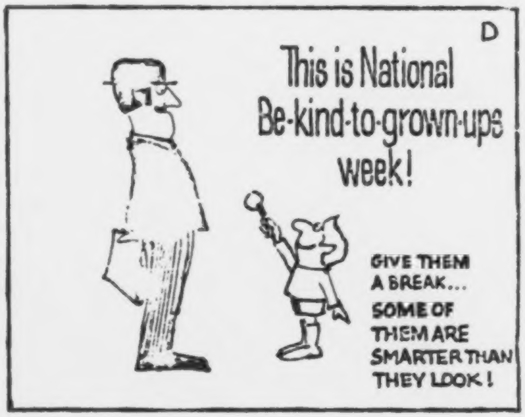
Remember, a fact is a piece of information that is thought or known to be true. Details are not necessarily true, however. Details can be found in things that are make-believe.

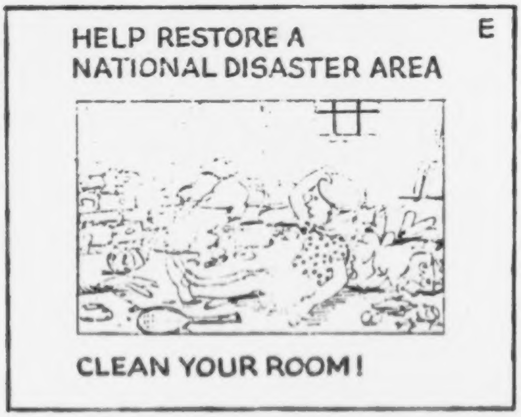
Look at the six posters on pages 8 and 9. Each poster has a letter in the upper right-hand corner. After you've looked at the posters, read the twelve statements on page 9. Then, on the line next to each statement, write the letter that tells which poster the statement is about.

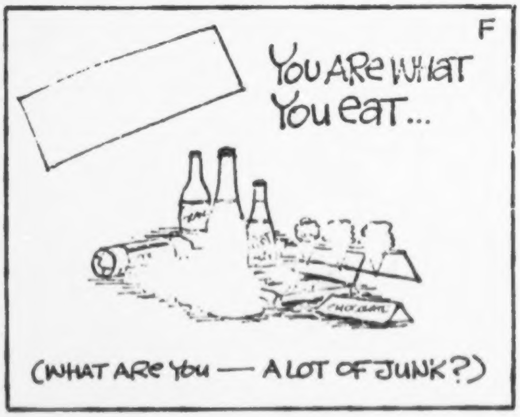

A
STOP NOISE POLLUTION
WAHHH
TURN DOWN THE VOLUME ON YOUR LITTLE BROTHER!
C
A


B
FRED FROG SAYS...
DON'T POLLUTE! How would you like it if someone dumped garbage in your home?


C
WALKING IS THE BEST WAY TO TRAVEL...
...BESIDES, IT'S HARD TO GET A ROWBOAT TO GO UP STAIRS!!


D
This is National Be-kind-to-grown-ups week!
GIVE THEM A BREAK... SOME OF THEM ARE SMARTER THAN THEY LOOK!


HELP RESTORE A NATIONAL DISASTER AREA
E
CLEAN YOUR ROOM!


F
You ARE WHAT You eaT...
(WHAT ARE You — A LOT OF JUNK?)

____ 1. This poster has the word *room* in it.

____ 2. This poster has pictures of food on it.

____ 3. This poster tells you a good way to get exercise.

____ 4. This poster shows a picture of a talking animal.

____ 5. This poster tells you a way to stop noise pollution.

____ 6. This poster tells you to give someone a break.

____ 7. This poster has the word *disaster* in it.

____ 8. This poster tells you what week it is.

____ 9. This poster shows you a hard way to get up stairs.

____ 10. This poster has the words *Don't pollute* in it.

____ 11. This poster has the word *junk* in it.

____ 12. This poster shows something that is making a lot of noise.

A news story usually contains facts. Most of the time, the facts in a news story tell about events that happened recently.

Read the following news story. Then read the statements below the news story. If a statement is true, write a *T* next to it. If a statement is false, write an *F* next to it. Base your answers on what you read in the news story.

Flooding causes damage at city zoo

Thomas Vicks of the Williamsport Zoo announced that yesterday's heavy rainstorm and flooding caused only slight damage in the zoo. Vicks said that luckily no animals were lost.

Vicks added that a baby yak was close to drowning in water over three feet deep, but the zoo keepers got to it in time and moved it to higher ground. The baby yak was born only two months ago. There was some other excitement when the floodwater filled the otters' moat, making it possible for the otters to escape. But at feeding time a few hours later, they returned to their moat. They were looking for someone to feed them. Vicks said that all the animals are now safe and well.

____ 1. Floodwater made it possible for the otters to escape.

____ 2. A baby yak was born at the Williamsport Zoo yesterday.

____ 3. A heavy rainstorm caused a tremendous amount of damage at the zoo.

____ 4. The floodwater at the zoo was over three feet deep in some places.

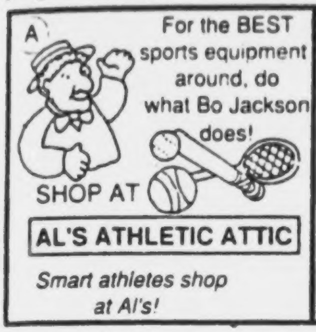
____ 5. The otters didn't return to their moat even at feeding time.

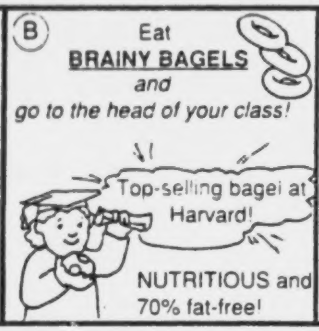
____ 6. Thomas Vicks announced that even though the zoo was flooded, all the animals are now safe and well.

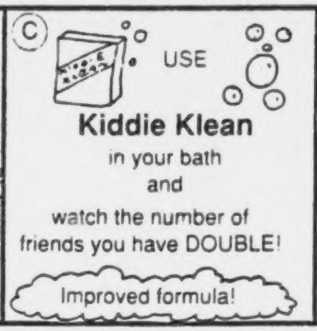
____ 7. Nothing was done to save the baby yak from drowning in the high water.

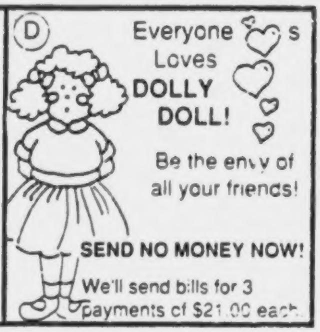
What A Deal!

Are you ever influenced to buy something because you saw a great ad for it? Can celebrities or sports heroes sway your thinking? See how well you can evaluate the advertisements on this page. Study each one carefully before answering the following questions.


A
For the BEST sports equipment around, do what Bo Jackson does!
SHOP AT
AL'S ATHLETIC ATTIC
Smart athletes shop at Al's!


B
Eat BRAINY BAGELS and go to the head of your class!
Top-selling bagel at Harvard!
NUTRITIOUS and 70% fat-free!


C
USE
Kiddie Klean
in your bath and watch the number of friends you have DOUBLE!
Improved formula!


D
Everyone Loves DOLLY DOLL!
Be the envy of all your friends!
SEND NO MONEY NOW!
We'll send bills for 3 payments of $21.00 each.

1. What is each ad trying to convince you to believe?
   A. ______________________
   B. ______________________
   C. ______________________
   D. ______________________

2. List all the facts given in the ads. (Remember: facts are statements that can be proven.)
   A. ______________________
   B. ______________________
   C. ______________________
   D. ______________________

3. In each ad, peer pressure is used to influence you. Give an example from each ad.
   A. ______________________
   B. ______________________
   C. ______________________
   D. ______________________

4. Which ads would you accept as being truthful? ______________________
   Why? ______________________
   ____
   ____
   Which ads could you not accept? ______________________
   Why not? ______________________
   ____
   ____

5. What else do you need to know about each product in order to make an informed, intelligent decision?
   A. ______________________
   B. ______________________
   C. ______________________
   D. ______________________

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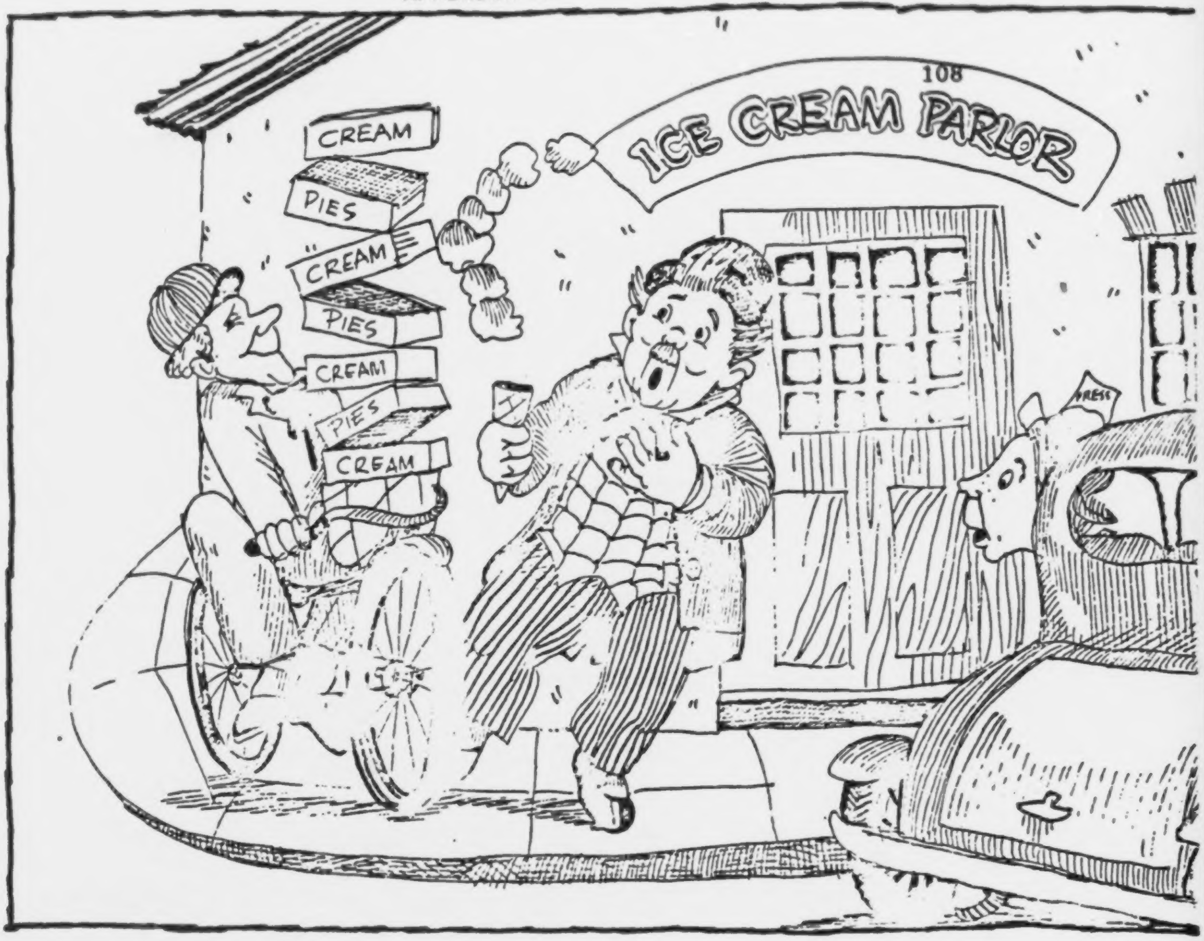
The Ice Cream Incident

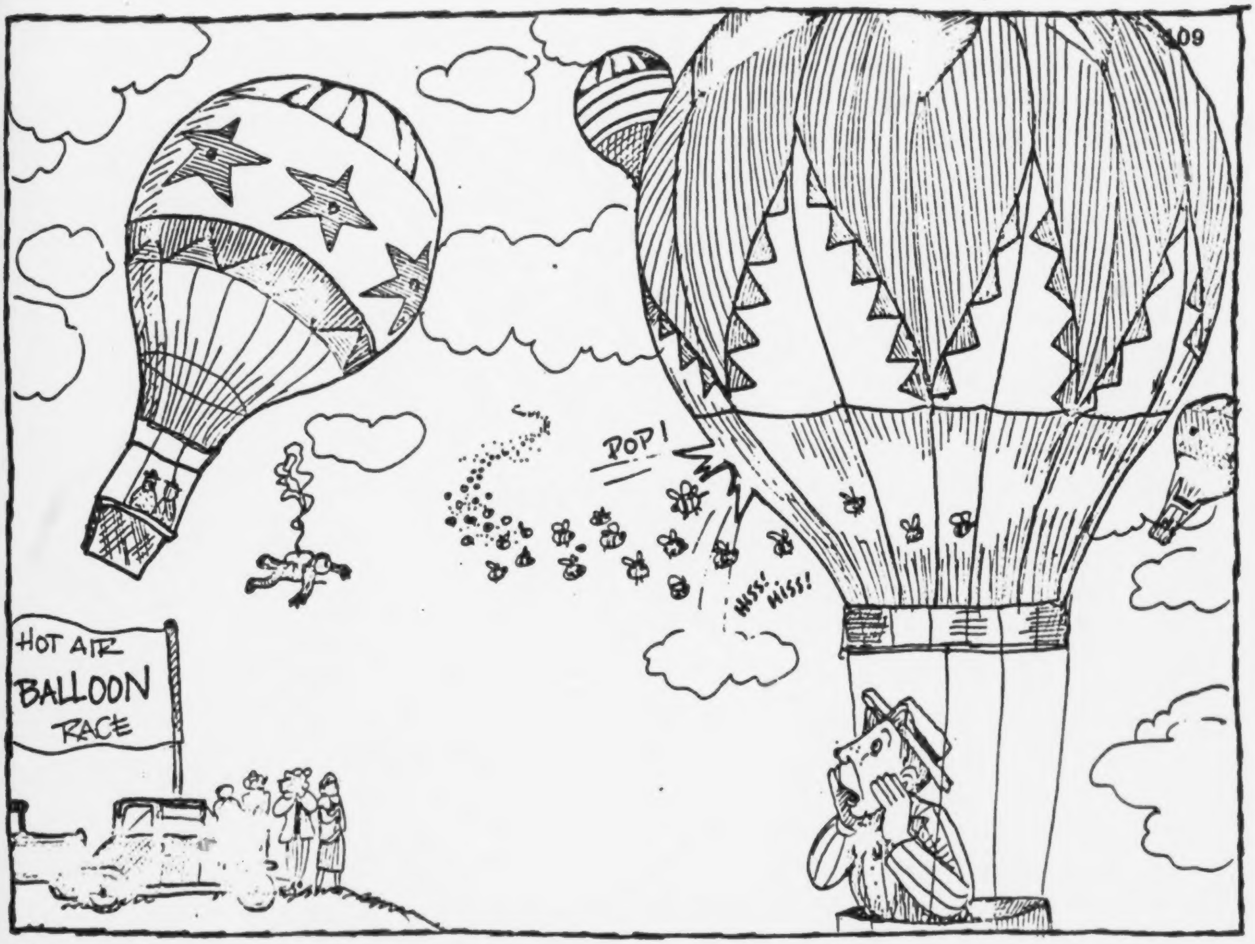
APPENDIX K



A lot of ice cream was spread all over the sidewalk when a man with a big nose was not watching where he was going. The man had a large stack of cream pies on his bicycle. Mr. McCurdy, a portly man with a moustache, went into the ice cream parlor and ordered an ice cream cone with six dips. He shouldn't have been eating so much ice cream. Just then a news reporter pulled up in front of the parlor. Mr. McCurdy paid for his ice cream and left the store. He was going around the corner to get into his car when the man with the pies ran into him from behind. The pies crashed to the ground. All were ruined.

At The Balloon Race

APPENDIX K


109
POP!
HISS! HISS!
HOT AIR BALLOON RACE

YOU ARE A WITNESS. WRITE YOUR REPORT HERE.

APPENDIX L

Checklist - Creative Writing Process

APPENDIX L

Checklist - Creative Writing Process

Student "A"

	Rarely	Occasionally	Often
The student:			
1. Participates in brainstorming activities			✓
2. Is able to generate a meaningful title			✓
3. Is able to select and write the topic sentence			✓
4. Is able to incorporate relevant supportive details for each topic sentence			✓
5. Is able to demonstrate organizational and sequential skills		✓	
6. Is able to polish and write from a rough draft		✓	
7. Is able to incorporate target skills in the writing process i.e., a. main idea; b. cause and effect; c. fact and opinion; d. make inference			✓
8. Is able to make inferences and come to a logical conclusion			✓
9. Is able to present the finished product to an audience			✓
10. Is able to intelligently critique the work of other students		✓	

I loved all the ideas you presented to the class. The class liked when you read your stories so clearly to them. keep working on story mapping. You do this better each time. Use your "Words For Writers List" to help you polish your stories and make them shine. The computer will also help you polish. Pay attention to paragraphs..... a new idea .... a new paragraph. Let others know what you think. This helps everyone.

APPENDIX L

Checklist - Creative Writing Process

Student "B"

	Rarely	Occasionally	Often
The student:			
1. Participates in brainstorming activities		✓	
2. Is able to generate a meaningful title			✓
3. Is able to select and write the topic sentence			✓
4. Is able to incorporate relevant supportive details for each topic sentence		✓	
5. Is able to demonstrate organizational and sequential skills		✓	
6. Is able to polish and write from a rough draft			✓
7. Is able to incorporate target skills in the writing process i.e., a. main idea; b. cause and effect; c. fact and opinion; d. make inference			✓
8. Is able to make inferences and come to a logical conclusion			✓
9. Is able to present the finished product to an audience			✓
10. Is able to intelligently critique the work of other students			✓

You have certainly improved your writing skills. Please try to write more details for each main idea. Try to get three details for each idea. You are getting better and better at story mapping - keep practicing! I loved the suggestions you gave to other writers. You had some very good ideas. Please don't be afraid of sharing them.

APPENDIX L

Checklist - Creative Writing Process

Student "C"

	Rarely	Occasionally	Often
The student:			
1. Participates in brainstorming activities			✓
2. Is able to generate a meaningful title			✓
3. Is able to select and write the topic sentence			✓
4. Is able to incorporate relevant supportive details for each topic sentence			✓
5. Is able to demonstrate organizational and sequential skills			✓
6. Is able to polish and write from a rough draft			✓
7. Is able to incorporate target skills in the writing process i.e., a. main idea; b. cause and effect; c. fact and opinion; d. make inference			✓
8. Is able to make inferences and come to a logical conclusion			✓
9. Is able to present the finished product to an audience			✓
10. Is able to intelligently critique the work of other students			✓

I'm so proud of you! You have become a really good writer. I loved the stories you did on the computer. You have given the other writers some excellent ideas. Reading more will help your creativity. Use your vocabulary lists and "Words for Writers" List to keep your stories colorful.

APPENDIX L

Checklist - Creative Writing Process

Student "D"

	Rarely	Occasionally	Often
The student:			
1. Participates in brainstorming activities		✓	
2. Is able to generate a meaningful title			✓
3. Is able to select and write the topic sentence			✓
4. Is able to incorporate relevant supportive details for each topic sentence			✓
5. Is able to demonstrate organizational and sequential skills		✓	
6. Is able to polish and write from a rough draft			✓
7. Is able to incorporate target skills in the writing process i.e., a. main idea; b. cause and effect; c. fact and opinion; d. make inference			✓
8. Is able to make inferences and come to a logical conclusion			✓
9. Is able to present the finished product to an audience			✓
10. Is able to intelligently critique the work of other students		✓	

You had some really fine ideas for your stories. Do not be "shy". Let the others know your ideas. It will help them. Keep working on story mapping, you are improving each time. Let others know what you think of their work. Use your "Words For Writers" list and the dictionary to help you spell those pesky little words. Remeber about paragraphs. I am pleased with your improvement.

APPENDIX L

Checklist - Creative Writing Process

Student "E"

	Rarely	Occasionally	Often
The student:			
1. Participates in brainstorming activities			✓
2. Is able to generate a meaningful title			✓
3. Is able to select and write the topic sentence			✓
4. Is able to incorporate relevant supportive details for each topic sentence			✓
5. Is able to demonstrate organizational and sequential skills			✓
6. Is able to polish and write from a rough draft			✓
7. Is able to incorporate target skills in the writing process i.e., a. main idea; b. cause and effect; c. fact and opinion; d. make inference			✓
8. Is able to make inferences and come to a logical conclusion			✓
9. Is able to present the finished product to an audience			✓
10. Is able to intelligently critique the work of other students			✓

You have come such a long way. Your ideas were wonderful and I am proud of how you were willing to share them. Remember all you learned for next year and you will be a successful writer. Think about ways to keep your writing colorful. Reading will help you create more ideas. The computer is a writer's "friend".

APPENDIX L

Checklist - Creative Writing Process

Student "F"

	Rarely	Occasionally	Often
The student:			
1. Participates in brainstorming activities		✓	
2. Is able to generate a meaningful title			✓
3. Is able to select and write the topic sentence			✓
4. Is able to incorporate relevant supportive details for each topic sentence		✓	
5. Is able to demonstrate organizational and sequential skills			✓
6. Is able to polish and write from a rough draft		✓	
7. Is able to incorporate target skills in the writing process i.e., a. main idea; b. cause and effect; c. fact and opinion; d. make inference			✓
8. Is able to make inferences and come to a logical conclusion			✓
9. Is able to present the finished product to an audience		✓	
10. Is able to intelligently critique the work of other students		✓	

You have tried very hard to be a good writer. Please try to let others know your good ideas. Work very hard on polishing your stories. Your vocabulary lists and "Word For Writers" List plus the dictionary can help. Always use story mapping. This will help you organize your thoughts. Let the others know what you think of their writings. This will help them a great deal and you will learn too. Try to use different kinds of sentences to make things more interesting. Remember TACEI (telling, asking, command, exclamation.)

APPENDIX L

Checklist - Creative Writing Process

Student "G"

	Rarely	Occasionally	Often
The student:			
1. Participates in brainstorming activities			✓
2. Is able to generate a meaningful title			✓
3. Is able to select and write the topic sentence			✓
4. Is able to incorporate relevant supportive details for each topic sentence		✓	
5. Is able to demonstrate organizational and sequential skills			✓
6. Is able to polish and write from a rough draft			✓
7. Is able to incorporate target skills in the writing process i.e., a. main idea; b. cause and effect; c. fact and opinion; d. make inference			✓
8. Is able to make inferences and come to a logical conclusion			✓
9. Is able to present the finished product to an audience			✓
10. Is able to intelligently critique the work of other students		✓	

You gave some wonderful ideas to the other students. You are quite creative. Use at least three details for each main idea. This will make each story interesting and colorful. It will also help the audience understand your story. Please let the others know what you think of their writings. This helps everyone to learn and improve. Pay attention to periods. Don't go through the stop sign (period) and crash into the next sentence.

APPENDIX L

Checklist - Creative Writing Process

Student "H"

	Rarely	Occasionally	Often
The student:			
1. Participates in brainstorming activities			✓
2. Is able to generate a meaningful title			✓
3. Is able to select and write the topic sentence			✓
4. Is able to incorporate relevant supportive details for each topic sentence			✓
5. Is able to demonstrate organizational and sequential skills			✓
6. Is able to polish and write from a rough draft			✓
7. Is able to incorporate target skills in the writing process i.e., a. main idea; b. cause and effect; c. fact and opinion; d. make inference			✓
8. Is able to make inferences and come to a logical conclusion			✓
9. Is able to present the finished product to an audience			✓
10. Is able to intelligently critique the work of other students			✓

I am proud of you. You have become a really good writer. I am so happy you shared your ideas with the others. You have helped them learn. Keep using your lists and read a great deal to give you creative ideas. When you polish your work also make your handwriting "shine". Use a variety of sentences to make your writing colorful. Remember TACE! (telling, asking, command, exclamation.) Put your stories on the computer. It will help make polishing easier for you. I liked the way you presented your stories to an audience. You always looked so proud.

APPENDIX M

Parent-Teacher Manual

APPENDIX M

TEACHING CRITICAL THINKING

HISTORY
GEOGRAPHY
SPELLING
COUNTY SCHOOL

THROUGHOUT THE CURRICULUM

OPERATIONAL DEFINITIONS

Thinking	"Thinking is the mental manipulation of sensory input to formulate thoughts, reason about, or judge." Barry Beyer
Thinking As Process	"Thinking is a process rather than a fixed state. It involves a sequence of ideas moving from some beginning, through some sort of pattern of relationships, to some goal or conclusion." David Russell
"Higher Order" Thinking	"Those mental processes, including critical and creative thinking, which go beyond recall and rote learning and allow individuals to generate alternatives, make connections and transformations, analyze, infer, hypothesize, justify, and evaluate." HOIS Task Force (MCPS)
Critical Thinking	"... interpreting, analyzing or evaluating information, arguments or experiences with a set of reflective attitudes and skills to guide thoughts, beliefs and actions." Richard Paul and Debbie Walsh
Creative Thinking	"Thinking that is inventive, that explores novel situations, that reaches new solutions to old problems, or that results in thoughts original with the thinker." *Dictionary of Education*
Metacognition	"... refers to one's knowledge concerning one's own cognitive proprocesses and products." John Flavell

...from Educational Leadership: "Synthesis of Research on Critical Thinking." Stephen P. Norris

Highlights from Research on Critical Thinking[122]

• **Critical thinking is a complex of many considerations.** It requires individuals to assess their own and others' views, to seek alternatives, make inferences, and to have the disposition to think critically.

• **Critical thinking is an educational ideal.** It is not an educational option. Students have a moral right to be taught how to think critically.

• **Critical thinking ability is not widespread.** Most students do not score well on tests that measure ability to recognize assumptions, evaluate arguments, and appraise inferences. Adults, as well, frequently make simple judgmental errors on simple problems.

• **Critical thinking is sensitive to context.** Students' background knowledge and assumptions can strongly affect their ability to make correct inferences. Inferences are more likely to be correct when the context relates to the individual's personal experience and when performance is not associated with threats or promises.

• **Teachers should look for the reasoning behind students' conclusions.** Coming up with a correct answer may not be the result of critical thinking. Essay tests are more likely to reveal the student's thought processes than are objective tests. And the tests themselves must be evaluated critically to make sure they require critical thinking skills.

• **Simple errors may signal errors in thinking at a deeper level.** In trying to solve complex problems, for example, students may err not just by making a miscalculation, but by using an incorrerct approach to the problem. They should be encouraged to take time before solving a problem to decide how to go about finding the solution.

• **Having a critical spirit is as important as thinking critically.** The critical spirit requires one to think critically about all aspects of life, to think critically about one's own thinking, and to act on the basis of what one has considered when using critical thinking skills.

• **To think critically, one must have knowledge.** Critical thinking cannot occur in a vacuum; it requires individuals to apply what they know about the subject matter as well as their common sense and experience.

• **We do not know a great deal about the effects of teaching critical thinking.** Critical thinking programs may teach students to be better thinkers, but more detailed knowledge is required before we will know specifically how students improve and how they remain deficient.

Ways to Improve Student Thinking

1. Ensure that students process information.
2. Ask broad, open questions.
3. Wait before calling on students.
4. Follow up student responses by asking for: clarification, elaboration, evidence, thinking process.
5. Have a clear purpose, plan a sequence of activities to accomplish it.
6. Make students conscious of their own thinking processes.
7. Model problem solving and other thinking processes.
8. Have students ask questions of their own.

Ten Ways to Improve the Quality of Student Thinking

1. Ensure that students process information rather than simply repeating it.

2. Ask broad, open questions.

3. Wait before calling on students. Wait before responding to answers.

4. Follow up student responses by asking for:

    a. Clarification - when you're not sure, or think other students may not be sure, what the student is talking about.
    b. Elaboration - when a student gives a cryptic answer that doesn't include the necessary details (needed to accomplish the purpose of the lesson).
    c. Evidence - when a student makes a statement that can be - or should be - substantiated.
    d. Thinking Process - when the basis for a student's assumption, inference, or judgement is not clear.

5. Have a clear purpose and plan a sequence of activities to accomplish it.

6. Make students conscious of their own thinking processes. Have them work in pairs so that all students have an opportunity to verbalize their thinking.

7. Model problem-solving and other thinking processes. Have student analyze the thinking processes of other people, such as great scientists.

8. Have student ask questions of their own.

9. Check your questioning and the kind of thinking you are getting by audio-taping your classes.

10. Meet now and then with a small group of other teachers interested in teaching for thinking.

TEN ASSUMPTIONS REGARDING THE DEVELOPMENT OF THINKING

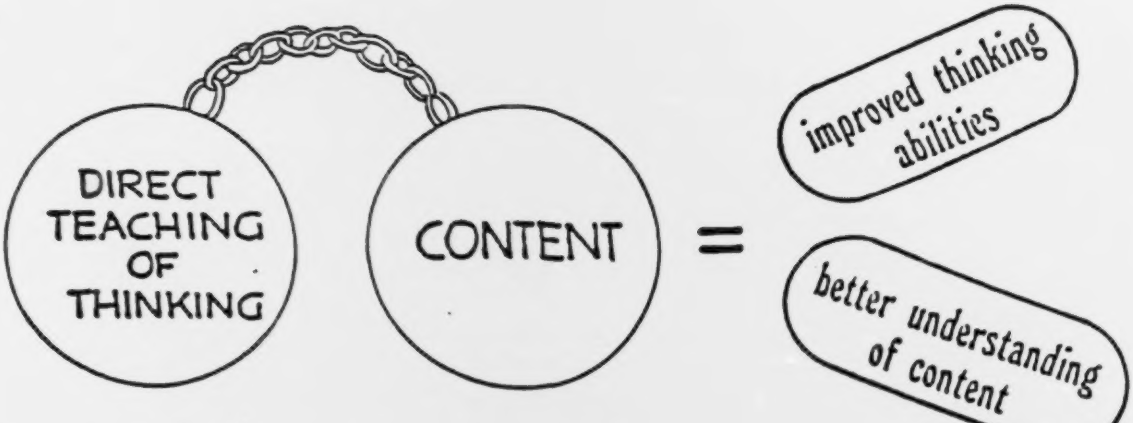
Jay McTighe

1. Thinking abilities can be developed.
2. Efforts to improve thinking should involve *all* students, not just the highly able.
3. Due to the developmental nature of thinking abilities, the improvement of thinking should be addressed throughout the grades and should begin in primary classrooms.
4. Thinking is fundamental to all subjects and therefore should be addressed within each content area.
5. Efforts to improve student thinking should include explicit instruction in thinking skills. It cannot be assumed that thinking will develop automatically as a by-product of other activities.
6. Teaching for thinking within content areas improves the quality of student thinking *and* promotes deeper understanding of content material.
7. Cooperative learning exchanges enhance the quality of thinking and learning.
8. Current standardized tests do not adequately assess higher order thinking skills. Both quantitative and qualitative methods should be used in assessment.
9. Teachers should be respected as thinkers and involved in professional planning, decision making and problem solving. Staff development programs should reflect this assumption.
10. Change takes time. The improvement of thinking is not susceptible to "quick fix" approaches. Significant results will require thoughtful, long-range planning and sustained commitment.

STEPS IN THE DIRECT TEACHING OF THINKING SKILLS

1. select the thinking skill to serve as the focus of a lesson
2. introduce and define the skill
3. discuss when the skill would be used
4. explain the steps/procedure involved in using it
5. demonstrate and have students practice the skill
6. apply the skill within the content area
7. reflect on the skill (discuss how it was used and how it might be applied to other topics/subject areas)
8. reinforce the skill through future applications in content lessons

Linking the Explicit Teaching of Thinking With Content


DIRECT TEACHING OF THINKING
CONTENT
=
improved thinking abilities
better understanding of content

GUIDING PRINCIPLES FOR THE EXPLICIT TEACHING OF THINKING

1. Make thinking the "focus" of the lesson.

Differentiate between lessons designed primarily to teach subject matter and lessons which focus on the teaching of specific thinking skills or processes. At the beginning of a thinking skill lesson discuss with students what they will be doing and why.

2. Build on prior knowledge when teaching thinking.

Use familiar material to teach new thinking skills. The "content" used in a thinking skill lesson may come from a familiar subject area or from non-academic sources, such as a movie, with which the students are familiar. (Likewise, familiar thinking skills can be successfully used to teach new content.)

3. Proceed from the CONCRETE to the ABSTRACT.

All thinking skills and processes can be applied in a variety of contexts from the very concrete and tangible to the highly abstract and subtle. When teaching a new thinking skill, begin with relatively "concrete" examples to insure student understanding before proceeding to more abstract applications.

4. Remember that thinking is more heuristic than algorithmic.

In the direct teaching of thinking, we want to help students recognize that certain general procedures are employed when executing thinking skills. However, this is not to suggest that thinking can be reduced to a set of rigid, step-by-step "formulas" that students must memorize. Individual differences in cognitive style should always be respected.

5. "Don't fix it if it ain't broke."

The explicit teaching of thinking is done to assist those students who do not have a clear understanding of specific thinking skills. If a student can demonstrate efficient and effective thinking, a directed skill lesson is unnecessary.

6. Avoid "skill overload".

In our quest to improve student thinking, it is important to resist the urge to "cover the waterfront" of thinking skills too quickly. Many experienced teachers and researchers suggest picking a modest number (4 - 6) of thinking skills to teach explicitly during the course of a year. For thinking, quality not quantity, is the goal.

DIRECT TEACHING OF THINKING SKILLS

Barry K. Beyer

Research on skill learning indicates:

A. Skills should be taught continuously using a framework consisting of these six stages:

1. readiness
2. introduction
3. guided practice
4. expansion/broadening
5. guided practice
6. application (to autonomous use)

B. There is more to skill teaching than having youngsters practice skills. Skill teaching strategies should employ the following principles:

1. In initial stages skill lessons should focus explicitly on the skill being taught.

2. Students should see a skill modelled.

3. The basic attributes/components of a skill need to be clearly identified.

4. Students should reflect on and articulate what they do in their heads as they engage in a skill.

5. Students should have intermittant, guided practice with immediate feedback in applying a skill once it has been introduced.

6. Skills need to be broadened with instructive guidance beyond the context, media and content in which they were introduced.

7. Skills should be taught and reinforced in subject matter areas where they can be used.

8. Any skill should be taught and used in combination with other skills.

A DIRECT SKILL TEACHING STRATEGY

STEP 1 INTRODUCE THE SKILL

Give its label/name

State its definition

- By doing it
- By telling about it
- By giving examples of it
- By giving synonyms

STEP 2 EXPLAIN THE SKILL

Tell the steps which comprise the skill:

- step-by-step how each operation proceeds; (rule-example-rule)

Use a concrete example to illustrate the skill, preferably an example from life experience of students

STEP 3 DEMONSTRATE THE SKILL

Lead the class step-by-step through the skill

- State the goal
- Refer to steps in moving through the skill
- Discuss content and skill steps in proceeding

Review by outlining the steps that constitute the skill

STEP 4 APPLY THE SKILL

Students practice the skill with teacher guidance

- Amount of guidance decreases as experience increases
- Focus on skill as well as on content
- Content should fit into course of study
- Students work in pairs/groups/triads/individually

Types of practice

- Equivalent to testing/using situation
- Analogous to test situation

Periodic review of steps of the skill and rules that guide its use

STEP 5 REFLECT ON THE SKILL

Review the steps which comprise the skill and the rules that guide its use

Reflect on ways in which skill is used and when it is appropriate to use

Reflect on relationship of this skill to other skills

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TEACHING A DIRECTED READING-THINKING ACTIVITY

Dr. Charles Sherwood
Director of Basic Skills Education and Reading Services
Dade County Public Schools

In the primary grades, and for children who have reading difficulties in any grade, the Directed Reading Lesson is an essential teaching technique. However, students who have learned to read only with literal comprehension need to develop higher level skills. The Directed Reading-Thinking Activity is a logical progression in reading instruction.

In the Directed Reading Lesson, the teacher usually has to establish the purpose for which the children are reading. As their reading skills mature, however, students must learn to set their own purposes. They need to decide what they want from a selection, and to determine how to get it. The DR-TA is an effective means of teaching them how to approach their reading material.

Teaching the Directed Reading-Thinking Activity requires teacher preparation. It cannot be taught as an unplanned, "round-robin" lesson. The essential steps are:

1. The teacher must read the selection in advance. It should be read actively, not passively—the teacher should predict the outcome, as well as intervening occurrences along the way.

2. Next, the teacher should decide how much of the material the students will need to preview to help them in purpose setting. This may include the title, chapter headings, illustrations, subheadings, etc.

3. Stopping points should be selected in advance. These might be specific physical points within the selection—certain page numbers after a picture, or after each introduction of important new information, such as a new character, a change of scene, or an incident.

4. The teacher should review questioning procedures before the lesson begins. Typical DR-TA questions include:

   a. "What do you think will happen in this storm?"
   b. "Why do you think that?"
   c. "Do the rest of you agree? Why or why not?"
   d. "How accurate were your predictions?"
   e. "What will probably happen now?"

5. A follow-up activity should also be planned. This might be one or more of the following:

   a. Further reading on the same or a related topic
   b. Other books by the same author
   c. Books or stories with a contrasting viewpoint
   d. Library research to verify or disprove information in the selection
   e. Vocabulary extension and development
   f. Relating the selection to personal experiences, current events, or other areas of the curriculum

There are several important things to keep in mind when teaching the DR-TA:

1. The stopping-point directions must be clear--the prediction process cannot function if a student reads ahead and knows the outcome of the story.

2. It is essential to listen to the students. Good thinking should be reinforced with praise, even if it does not result in the correct prediction.

3. The teacher should respond to student contributions in a way that shows respect for their ideas. Divergent thinking must not be squelched--negative reactions can destroy the effectiveness of the DR-TA.

4. Some form of the DR-TA questions should be used. The teacher should avoid setting reading purposes; the point of the Directed Reading-Thinking Activity is to help students develop independent critical reading skills.

5. Socratic questioning is appropriate. The teacher should probe to make students cite evidence or give reasons for their predictions and answers.

6. Because most follow-up activities for the DR-TA are independent, it is important that directions are both clear and complete.

In the intermediate grades and in secondary school, the Directed Reading Thinking Activity is effective in teaching content-area materials. When it is conducted in a group environment, it enables students to learn subject matter from the discussions and purpose-setting phases even if the reading material is difficult for some of them. However, most authorities recommend that the size of the group be limited to eight or ten students to allow for maximum participation and interaction.

BLOOM'S TAXONOMY OF COGNITIVE SKILLS

KNOWLEDGE

Student recalls or recognizes information, ideas, and principles in the approximate form in which they were learned.

TERMS:

- define
- list
- identify
- describe
- match
- locate

COMPREHENSION

Student translates, comprehends or interprets information based on prior learning.

TERMS:

- explain
- summarize
- interpret
- rewrite
- convert
- give example

APPLICATION

Students selects, transfers and uses data and principles to complete a life problem task with a minimum of direction.

TERMS:

- demonstrate
- show
- operate
- construct
- apply

ANALYSIS

Student aware of thought process in use and can examine, classify, hypothesize, collect data, and draw conclusions to the nature or structure of a question.

TERMS:

- compare
- contrast
- distinguish
- deduct
- infer
- analyze
- categorize

SYNTHESIS

Student originates, integrates, and combines ideas into a product, plan or proposal that is new to him.

TERMS:

- create
- suppose
- design
- compose
- combine
- rearrange

EVALUATION

Student appraises, assesses or criticizes on a basis of specific standards and criteria (this does not include opinion unless standards are made explicit).

TERMS:

- judge
- appraise
- debate
- criticize
- support

Project Impact
Phi Delta Kappa

SIDNEY PARNES - CREATIVE PROBLEM SOLVING

STEPS	ACTIVITIES
1. FACT FINDING	Analyzing what is known about the "mess" Collecting data about the problem Acting as a camera observing carefully and objectively Exploring the facts of the situation
2. PROBLEM-FINDING	Looking at possible problems from several viewpoints Speculating on possible problems Narrowing down to the major problem Restating the problem into solvable form Using the phrase "IN WHAT WAYS MIGHT I" to encourage ideation and elaboration Changing the verb when restating the problem Trying out the plan on a pilot basis to see if it works Making contingency plans in case the first plan doesn't work
3. IDEA-FINDING	Generating many ideas and possible solutions Producing ideas to solve a problem Brainstorming for ideas or alternative solutions Listing as many ideas as possible
4. SOLUTION-FINDING	Choosing those alternatives with the greatest potential for solving the problem Developing criteria for the evaluation of alternatives Objectively applying the criteria to each alternative Evaluating alternatives on the basis of criteria appropriate to the needs of the problem Listing the criteria using either a convergent or divergent process
5. ACCEPTANCE-FINDING	Developing a plan of action Considering all audiences who must accept the plan Brainstorming the concerns of all these audiences

TEACHER'S DAILY SELF-INVENTORY

1. Did I smile at my students and reflect a pleasant and positive attitude? Yes_ No_
2. Did I greet my students at the door? Yes_ No_
3. Did I make physical or eye contact with my students? Yes_ No_
4. Did I treat all students with respect and dignity today? Yes_ No_
5. Did I make sure that students understood all of my directions today? Yes_ No_
6. Did I handle conflict effectively when it occurred today? Yes_ No_
7. Did I compliment students about their motivation, character traits, deeds or actions? Yes_ No_
8. Was I sensitive to my students' needs? Yes_ No_
9. Did I treat each student as a unique individual? Yes_ No_
10. Did I treat boy and girl students equally? Yes_ No_
11. Did I nurture myself during the day so my own self-esteem was maintained? Yes_ No_

Reading, Thinking, and Writing

A four-step model of the comprehension process:

1. Initial comprehension, leading to
2. Preliminary interpretations, followed by
3. A reexamination of the text in light of these interpretations, leading to
4. Extended and documented interpretation

Only 5 to 10% move beyond Step 2.

"Students seem satisfied with their initial interpretations of what they have read and seem genuinely puzzled at requests to explain or defend their points of view. Few students could provide more than superficial responses to such tasks, and even the "better" responses showed little evidence of well-developed problem-solving strategies or critical-thinking skills."

—National Assessment of Reading and Literature, 1979-80

THE WRITING PROCESS

PREWRITING	WRITING	REWRITING
iscover new things xplore new ideas ake choices emember associated things lassify ideas ntally verbalize	- Write -Pause -Scan -Contemplate	-Criticize -Proofread
ceptive experience	Forming	Read to understand
servation	Choosing	Read to communicate
membrance	Arranging	Read to see what has been suggested and then: confirm alter develop ideas
xploratory experience research reading interviewing note taking	Manipulating	
lassification/Logic outlining structure of forms choosing form of		Determine if paper reflects earlier goals shows clear examples has order to examples is understandable has appropriate word choice
(Identify audience, tone; arrange ideas and develop topic sentence; select language for the purpose.)		External standards form spelling punctuation grammar neatness
houghts and ideas are [illegible]	(1st word to final stop)	(Finishing and polishing)

QUESTIONING FOR QUALITY THINKING

Knowledge—Identification and recall of information
Who, what, when, where, how ____________?
Describe ____________.

Comprehension—Organization and selection of facts and ideas
Retell ____________ in your own words.
What is the main idea of ____________?

Application—Use of facts, rules, principles
How is ________ an example of ________?
How is ________ related to ________?
Why is ____________ significant?

Analysis—Separation of a whole into component parts
What are the parts or features of ____________?
Classify ________ according to ________.
Outline/diagram/web ____________.
How does ________ compare/contrast with ________?
What evidence can you list for ____________?

Synthesis—Combination of ideas to form a new whole
What would you predict/infer from ____________?
What ideas can you add to ____________?
How would you create/design a new ____________?
What might happen if you combined ____________
with ____________?
What solutions would you suggest for ____________?

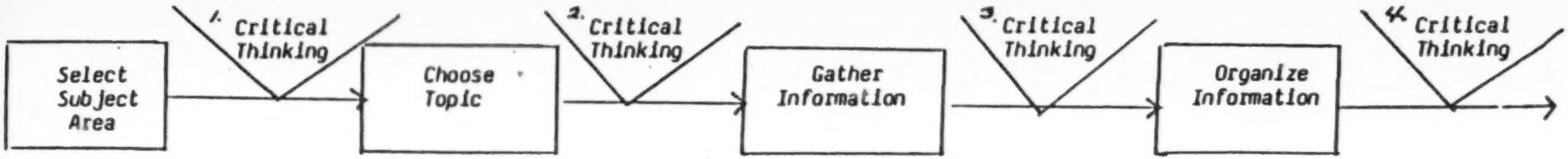
Evaluation—Development of opinions, judgements, or decisions
Do you agree ____________?
What do you think about ____________?
What is the most important ____________?
Prioritize ____________.
How would you decide about ____________?
What criteria would you use to assess ____________?

STRATEGIES TO EXTEND STUDENT THINKING

- Call on students randomly
  Not just those with raised hands
- Utilize "think-pair-share"
  Two minutes of individual think time, two minutes discussion with a partner, then open up the class discussion
- Remember "wait time"
  Ten to-twenty seconds following a "higher level" question
- Ask "follow-ups"
  Why? Do you agree? Can you elaborate? Tell me more. Can you give an example?
- Withhold judgement
  Respond to student answers in a non-evaluative fashion
- Ask for summary (to promote active listening)
  "Could you please summarize John's point?"
- Survey the class
  "How many people agree with Debra's interpretation"? ("thumbs up, thumbs down")
- Allow for student calling
  "Richard, will you please call on someone else to respond?"
- Play devil's advocate
  Require students to defend their reasoning against different points of view
- Ask students to "unpack their thinking"
  "Describe how you arrived at your answer." ("think aloud")
- Student questioning
  Let the students become questioners

Language and Learning Improvement Branch
Maryland State Department of Education

Muller's Metacognitive Analysis of Critical Thinking in the Research Process, or How to Curtail Encyclopedia Copying

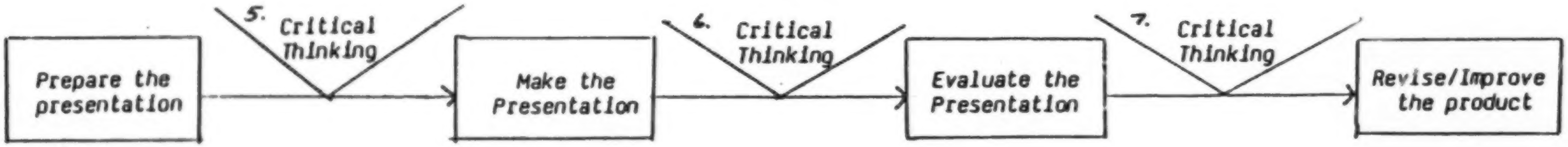

Select Subject Area
1. Critical Thinking
Choose Topic
2. Critical Thinking
Gather Information
3. Critical Thinking
Organize Information
4. Critical Thinking

1.
hat is important to know
bout this subject? What
s the purpose of this
esearch? What interests
e? Why? What are cur-
ent issues in this field?
ow can I learn more about
opics?

2. What are the best sources? Who is the author? When was this published? How can this information be verified? Where else can I look? What criteria should be used to evaluate sources?

3. What was the author's purpose? Who is the intended audience? Is this fact or opinion? What was the most important aspect of the information? What was irrelevant? What was false? What was unsubstantiated?

4. What is my opinion? What is the purpose of this presentation? Who is the intended audience? What are my personal biases?


Prepare the presentation
5. Critical Thinking
Make the Presentation
6. Critical Thinking
Evaluate the Presentation
7. Critical Thinking
Revise/Improve the product

5. Am I communicating my purpose? Who is the audience? What are their purposes? interests? biases? How might they use this information? How might they substantiate my presentation? Do they agree with my opinion? Why? Do they accept the information I present as fact? Why?

6. What criteria should be used to judge this work? Do the reactions from different sources agree? What was the best part? What part most needs to be improved? Did this work accomplish its purpose? Why?

7. What further information is needed? What are the best sources for this information? Where can I seek assistance? What type? What is the best source? What is my purpose in revision? What have I learned through this process? What do I still need to know?

Appendix C

Self-Reflection on Your Teaching: A Checklist

John Barell

sing a scale of 1 to 5, rate your classroom and school according to the following items.

5 = Very Often   4 = Often   3 = Sometimes   2 = Seldom   1 = Hardly Ever

LASSROOM

1. When students pose unusual or divergent questions, I ask: "What made you think of that?"	5	4	3	2	1
2. Whatever the text says is accepted as the right answer.	5	4	3	2	1
3. When a decision has to be made between involving the class in a discussion of an intriguing student idea (topic related) or moving on to "cover" content, I choose the latter.	5	4	3	2	1
4. I encourage students to seek alternative answers.	5	4	3	2	1
5. Students give reasons for making statements.	5	4	3	2	1
6. I use subject matter as a means for students to generate their own questions (or problems), which we then seriously consider.	5	4	3	2	1
7. When teaching, I sit or stand behind my desk.	5	4	3	2	1
8. Most questions posed during class can be answered with short or one-word answers.	5	4	3	2	1
9. Students spontaneously engage in critiquing each other's thinking.	5	4	3	2	1
10. Students relate subject matter to experiences in other subjects or in their personal lives.	5	4	3	2	1

11. I stress *what* to think, not *how*.	5	4	3	2	1
12. Students often set objectives for their own learning.	5	4	3	2	1
13. Students spend time working collaboratively to solve subject matter questions.	5	4	3	2	1
14. One focus in my classroom is trying to understand how and why people (mentioned in texts) created ideas, solutions, experiments, rules, principles, and so on.	5	4	3	2	1
15. My classroom mirrors the patterns of involvement practices in most faculty meetings.	5	4	3	2	1
16. Students actively listen to each other.	5	4	3	2	1

SCHOOL

17. We talk about the nature of thinking.	5	4	3	2	1
18. My school stresses collaborative instructional problem solving.	5	4	3	2	1
19. I learn from my colleagues by observing their teaching.	5	4	3	2	1
20. My supervisor and I discuss how to challenge students to think in more complex fashions.	5	4	3	2	1

CRITICAL THINKING SKILLS

A summarization of many current lists of critical thinking skills would include the following skills:

1. Identifying central issues
2. Recognizing underlying assumption
3. Recognizing stereotypes and cliches
4. Recognizing bias, ethnocentricity, propaganda, or emotional factors in a presentation
5. Distinguishing between verifiable and unverifiable data
6. Distinguishing between relevant and nonrelevant data
7. Distinguishing between essential and incidental
8. Recognizing the adequacy of data
9. Determining whether facts support a generalization
10. Checking consistency
11. Drawing warranted conclusions or inferences
12. Formulating or evaluating hypotheses
13. Reference skills
14. Evaluating reliability of data
15. Distinguishing facts from opinion and reasoned judgment
16. Determining validity or soundness of an argument
17. Judging whether a theory is warranted
18. Exhibiting explanatory skills
19. Judging whether a statement is overvague or overspecific
20. Comparing similarities and differences among ideas or events
21. Classifying items according to rational criteria
22. Making informed judgments
23. Drawing applications to a different context
24. Relating cause and effect
25. Making decisions
26. Evaluating questions
27. Building theories

(California Assessment Program (CAP), California State Department of Education, 1984)

Table I - Third Grade Critical Thinking Skills

I. Clarifying Issues and Terms
   - A. Makes careful observations
   - B. Identifies and expresses main idea, problem, or central issues
   - C. Identifies similarities and differences
   - D. Organizes items into defined categories
   - E. Defines categories for unclassified information
   - F. Identifies information relevant to a problem
   - G. Formulates questions
   - H. Recognizes different points of view

II. Judging and Utilizing Information
   - A. Identifies obvious stereotypes
   - B. Distinguishes between fact and opinion
   - C. Identifies and explains sequence and prioritizing
   - D. Identifies evidence that supports (or is related to) a main idea
   - E. Identifies obvious assumptions
   - F. Identifies obvious inconsistency and contradiction
   - G. Identifies cause and effect relationships

III. Drawing Conclusions
   - A. Recognizes the adequacy of data
   - B. Identifies cause and effect relationships
   - C. Draws conclusions from evidence
   - D. Puts simple hypotheses into "if, then" sentences

Table II - Sixth Grade Critical Thinking Skills

I. Clarifying Issues and Terms

A. Can distinguish clear from unclear formulations of (simple) issues and problems
B. Notes obvious similarities and differences 143
C. Understands the concept of relevance and irrelevance
D. Can recognize simple appropriate and inappropriate questions
E. Able to express problems and issues
F. Can recognize obvious individual and group value orientations and ideologies

II. Judging and Utilizing Information

A. Understands the idea of a stereotype and cliche
B. Understands the idea of bias, propaganda, semantic slanting
C. Understands the idea of fact, opinion, and reasoned judgment
D. Understands the idea of inconsistency and contradiction
E. Understands the idea of assumption
F. Understands the idea of evidence

IV. Drawing Conclusions

A. Understands the idea of drawing conclusions from evidence
B. Understands the idea of predictory consequences
C. Understands the concept of hypothesizing
D. Can put simple hypotheses into "if, then" sentences
E. Understands the idea of an analogy, and a generalization
F. Understands the idea of implication

Table III - Eighth Grade Critical Thinking Skills

I. Clarifying Issues and Terms

A. Can identify central issues or problems
B. Can identify similarities and differences
C. Can determine which information is relevant
D. Can formulate appropriate questions
E. Can express problems clearly and concisely
F. Can recognize individual and group value orientations and ideologies

II. Judging and Utilizing Information

A. Can recognize stereotypes and cliches
B. Can recognize obvious bias, emotional factors, propaganda and semantic slants
C. Can distinguish among fact, opinion and reasoned judgment
D. Can recognize simple inconsistencies and contradictions
E. Can recognize simple unstated assumptions
F. Can recognize clearly insufficient data

III. Drawing Conclusions

A. Can identify reasonable alternatives
B. Can predict possible consequences
C. Can test conclusions or hypotheses
D. Can reason hypothetically
E. Can identify causal claims/generalizations/analogies
F. Can recognize immediate implications

Table IV - Tenth Grade Critical Thinking Skills

I. Clarifying Issues and Terms

- A. Can delineate controversy components
- B. Can identify criteria that best organizes data
- C. Can identify fallacies or relevance
- D. Can formulate appropriate questions
- E. Can paraphrase accurately
- F. Can distinguish among diverse viewpoints

II. Judging and Utilizing Information

- A. Can recognize subtle manifestations of stereotypes and cliches
- B. Can recognize subtle manifestation of emotional factors, propaganda and semantic slants
- C. Can distinguish among fact, opinion, and reasoned judgment in subtle cases
- D. Can recognize subtle or indirect inconsistencies
- E. Can recognize subtle or "buried" assumptions
- F. Can recognize subtle differences in judging the sufficiency of data

III. Drawing Conclusions

- A. Can justify the selection of an alternative
- B. Can distinguish between possible and probable consequences
- C. Can tailor conclusions strength to evidence
- D. Can reason within opposing points of view
- E. Can recognize fundamental problem in causal claims/generalizations/analogies
- F. Can recognize indirect or extended implications

Table V - Twelfth Grade Critical Thinking Skills

I. Clarifying Issues and Terms

- A. Can distinguish real and stated issues
- B. Can identify the most satisfactory interpretation of data
- C. Can determine degrees of relevance
- D. Can formulate appropriate questions
- E. Can articulate positions and support
- F. Can compare political economic, legal and social systems

II. Judging and Utilizing Information

- A. Can distinguish between images and substance
- B. Able to write sentences and material into "unbiased" form
- C. Able to use facts, opinions, and reasoned judgments in an effective manner in speeches and writing
- D. Demonstrates a sensitivity to subtle inconsistencies in reading and writing
- E. Demonstrates a sensitivity to questionable assumptions in reading and writing
- F. Demonstrates an ability to marshall data and use it effectively in coming to reasoned judgments

III. Drawing Conclusions

- A. Can generate reasonable alternatives
- B. Can anticipate desirable and undesirable consequences
- C. Demonstrates the ability to come to a reasoned judgment in reading, writing, and speech
- D. Demonstrates a sensitivity to the "strongest" forms of opposing points of view
- E. Can develop and assess causal claims
- F. Can develop an extended line of reasoning, taking into account problematic implications (CAP, 1984 reprinted with permission).